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July 1998 • Vol. 9 Iss. 7 • \$3.95 U.S. • \$4.95 Canada



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What's Working/What Isn't
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Smart Computing

IN PLAIN ENGLISH

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Corrections/Clarifications:

- "The Browser War" in our June 1998 issue incorrectly stated that America Online's built-in Web browser lacks a favorite places button on the toolbar and that Microsoft Internet Explorer and Netscape Navigator would not work with the Windows 3.1 version of AOL. AOL's favorite places button appears on the main AOL toolbar, though not on the browser's toolbar. Full Windows 3.1 versions of Netscape and Internet Explorer will work with AOL 3.0 for Windows 3.1.
- The name of the Windows shell program *Calypto* covered in our June 1998 story "Windows Add-Ons" has been changed to *Calmira*. You can find the current program file at <http://www.tribbles.demon.co.uk/calmira>.
- Our June 1998 "Q&A" column stated that compressed files take two forms, those ending with the .ZIP extension and those ending with the .EXE extension. It is more accurate to say compressed ZIP files take two forms. There are many kinds of compressed files (including ARC, ARK, GZ, LZH/LHS, PAK, and ZOO). Our Q&A discussion, however, didn't apply to these kinds of files.

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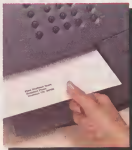
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TECHNOLOGY NEWS

Compiled by Joel Strauch from AP and staff reports



Snail Mail Embraces Technology

The world's postal services have found ways to work with the Internet, not against it. With a little help from computers, the United States and Britain are taking snail mail further by updating it for our technologically savvy world.

Electronic stamps. Mouse mail may be in your future, now that the post office has approved the first test of PC-generated postage. "This is the future: postage directly from a personal computer," U.S. Postmaster General Marvin Runyon says.

Well, not quite yet. But before long clicking may replace all that licking and sticking. Runyon says the development is "the most significant new form of postage payment in three-quarters of a century."

The move toward electronic postage comes 78 years after approval of postage meters and 151 years after the United States issued its first postage stamp. The system approved for testing was developed by E-Stamp Corp. of Palo Alto, Calif., but other companies are working on similar products. E-Stamp calls its product SmartStamp, while the Postal Service's official name for the system is "information-based indicia." The SmartStamp prints on a regular computer printer as it puts the address on an envelope.

Most people use personal computers and the Internet to generate content that ultimately goes into the mail stream, E-Stamp President Suni Kapoor says. Those with a computer, a printer, and an Internet connection already have what they need to print postage.

While the systems of other companies may vary, SmartStamp provides a small piece of hardware that fits into a computer port and serves as an electronic vault for stored postage. Customers who have an account with the company can download postage

into this vault via the Internet whenever needed. They print the envelopes when they need them.

Pam Gilbert, Postal Service vice president for retail, says security is the main concern in developing an electronic postage system, since the ability to print stamps is equivalent to printing money. The SmartStamp prints an electronic barcode with the identification number of the printing device and a digital pattern that will make each envelope unique and hard to counterfeit.

Turning E-mail to snail mail. By pushing a button and entering their credit card numbers, Internet users will have their E-mail messages shipped the old-fashioned way: on paper in envelopes. Britain's Royal Mail and Microsoft Corp. are teaming up on the project, dubbed RelayOne.

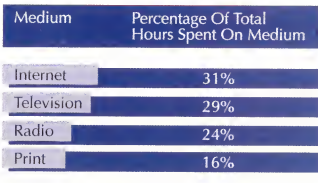
E-mail users can send electronic messages to the post office, where Royal Mail will download and print them and then send them anywhere. It will cost from \$2.50 for a one-page letter to \$16.70 for a 50-page letter mailed anywhere in the world.

The service has the advantage of allowing users to send E-mail to recipients without computers, and it would also compete with overnight delivery services from outside Britain to points within Britain by guaranteeing next-day delivery for a cheaper price.

Although the service costs five times the price of a regular stamp in Britain, it could be good for people who don't want to leave their desks, or computers, to find stamps and envelopes just to send a letter. Customers won't have to worry about nosy postal workers reading their E-mail messages; all the work, from downloading the text to stuffing the envelopes and adding the postage, will be done by machines. ■

I Want My Web, Not TV

Internet use is surpassing television use in connected households. According to the WebCensus (<http://www.webcensus.com>), a quarterly survey on the demographics and usage of the Internet conducted by Hambrecht & Quist and LinkExchange, the Internet is the most popular medium among heavy media users.



Windows 98 Crashes The Gates

Microsoft's "perfect tune-up" for its widely used operating system needed a tune-up itself recently. Windows 98 crashed as Microsoft CEO Bill Gates showed off its features at April's Spring Comdex show in Chicago.

The operating system, scheduled to be released in June at a retail price of about \$89, collapsed when a Microsoft employee plugged in a scanner with his boss standing alongside. Gates was forced to move to another computer to complete his demonstration of the Windows 95 (Win95) successor.

"I guess we still have some bugs to work out," he said. "That must be why we're not shipping Windows 98 (Win98) yet."

He says Win98 will be simpler to use than the popular Win95 version, which has 150 million copies in use. Gates says computer makers will begin using the system this summer, with Win95 quickly becoming obsolete. ■

A Gorilla Goes Online To Chat

A gorilla who understands sign language went online in what is being called the first interspecies chat over the Internet. Koko the gorilla answered questions on America Online (AOL). Her tutor, Francine Patterson, translated questions between AOL users and Koko.



The chat was held to highlight the plight of gorillas and was a celebration of Earth Day. Questioners from around the world typed in questions that were related to Patterson, who signed them to Koko. Patterson then translated Koko's responses and relayed them to a typist.

The 26-year-old western lowland gorilla has been tutored for 25 years in American Sign Language. She understands more than 2,000 words of spoken English and has a working vocabulary of 500 signs, according to the Gorilla Foundation, a research center near San Francisco. ■

Intel Launches Pentium II For Mobile PCs

Santa Clara, Calif.-based Intel Corp. unleashed the latest version of its Pentium II processor designed specifically for notebook computers at speeds of 233 megahertz (MHz) and 266MHz.

Intel first launched its Pentium II processor in May 1997, but it didn't have a version for the mobile market, according to Reuters reports. This is because the Pentium II cartridge was previously too bulky for notebook and laptop computers. Intel designed the new Pentium II for mobile computers with a mini cartridge, and it runs at a much lower voltage than the typical Intel processors.

TECH SHORTS



Reuters reports that on June 10 Seiko Instruments Inc. began selling the world's first wearable PC in wrist-watches in Japan. The new Ruputer watch can download data, including text and pictures, from other PCs via infrared signals. The Ruputer sells with three software applications that run on Windows 95, and it can play games. The watches come equipped with a 16-bit central processing unit and 128 kilobytes of main memory. The company will launch two models with retail prices of \$290 and \$366.

Two Vanderbilt University professors are developing robot insects that someday could help soldiers scout enemy positions or aid scientists exploring other planets. The two mechanical engineering professors won a \$904,000 Pentagon contract to build the bugs. Ephraim Garcia and Michael Goldfarb envision equipping the tiny machines with sensors or a camera to relay information. "They are basically going to be small, mostly metallic bugs, with four to six legs. They'll be a couple of inches long, about the size of a large beetle," Goldfarb says. The battery-operated crawlers will be made of titanium or steel. At first each unit will cost about \$100, but if the bugs were mass-produced, the cost could be as low as \$10, the professors say. ■

"The packaging makes it more mobile-friendly," says Steve Nachtsheim, an Intel vice president and general manager of the mobile and handheld products group. ■

Gateway Is Goin' To Cali

Gateway 2000, which recently shortened its name to Gateway, is moving its administrative offices out of South Dakota. The company's operations base, however, will remain in the state. About 20 high-level executives, including Chief Executive Ted Waitt, will move to offices in San Diego sometime this summer.

Waitt and Jeffrey Weitzen, the president and chief operating officer, however, will maintain offices in both locations, Waitt says. Gateway will keep its manufacturing facilities and several of its divisions, including its largest, Gateway Direct, in North Sioux City, S.D. Waitt says. The operation there could gain 250 jobs by the end of the year, he says.

Waitt expects Gateway will employ about 100 people at the California headquarters by the end of the first year. The San Diego location will help Gateway attract the people it needs for expansion, he says.

"There's fierce competition out there for talent," he says. The move will also put headquarters closer to suppliers, he says.

"What we'll be doing in California is 90 percent growth. With adding the 250 jobs, the payroll will be more here," he says. Gateway has 12,500 employees worldwide. ■

● Hardware

Peak Development has released its new Marco Polo PC Card, a 12-channel global positioning system (GPS) card for use with Windows CE handheld and laptop PCs. The card **tracks up to 12 satellites simultaneously** and provides fast time-to-first-fix (within 15 seconds), one-second navigation updates, and low power consumption. The Marco Polo starts at \$699 (01144/1489-796979, <http://www.peak-development.co.uk>). . . . Get up to speed with Tyan Computer's new Pentium II motherboard. The Tsunami ATX motherboard, at prices of \$219 and \$259, contains 100 megahertz (MHz) front side bus support and one advanced graphics port (AGP) slot, as well as five PCI and two ISA slots (408/956-8000, <http://www.tyan.com>). . . . Keep those voices from getting into your head with the NoiseBuster Extreme! stereo headphone from Noise Cancellation Technologies Inc. These headphones, which retail for \$69, let the user adjust the level of background noise reduction

from 8 decibels (dB) to 15dB. The product also features a built-in switch you can set for portable audio or in-flight use, keeping the cabin quiet on those red-eye business trips (800/278-3526, 203/961-0500, <http://www.nct-active.com>). ■



Peak Development's Marco Polo GPS PC Card

● Software

Have you ever made a mistake computing and wished you could take it back like a word processing undo command? Kiss Software's "Undo-It!" utility, \$39.95, lets you take back some of those errors. Some of the mistakes you can remedy with this program are pressing the Save button instead of the Save As button, accidental deletions, and file overwrites (888/454-7726, 714/979-5477, <http://www.kissco.com>). . . . The LivePix Company has released LivePix 2.0 Deluxe, a software package that lets users turn personal photos into fun photo projects with special templates and editing tools. The software retails for \$49.95 and makes it easy to create collages, cards, and calendars (800/727-1621, 415/908-1067, <http://www.livepix.com>). . . . For more advanced photo manipulation, Vortron Technologies' PhotoZone Advanced Photo Studio gives professional

and novice graphics users a comprehensive set of tools for image-editing, file conversion, slide show creation, encryption, photo album creation, and cataloging. The package retails for \$99.95 and contains the ability to sequence a series of images together with sound support (613/721-1107, <http://www.vorton.com>). . . . Are long, archaic addresses on the World Wide Web playing havoc with your short-term memory? Syberdyne System's NetClicker 2.0 may be your solution. The television remote interface and simple push-button controls replace a long Web site address with easy-to-use four-character "channel numbers." The \$29.95 software obtains sites when developers register with NetClicker and automatically downloads new channels to product users (606/272-1419, <http://www.netclicker.com>). ■



Kissco's Undo-It!

Business

If you want to get your business Web site up and running, an easy-to-use and inexpensive tool is Macmillan Digital Publishing's Web Page Construction Kit 4.0. The kit retails for \$29.95 and contains a powerful What You See Is What You Get (WYSIWYG) editor that lets you add text by simply typing it in. It also has "wizards" that walk you through each step of the design process and more than 100 starter templates in a variety of categories including business, school, and restaurant. It includes more than 5,000 graphics, and you can add tables and frames to your site with a simple mouse click (800/716-0044, 317/228-4366, <http://www.macdigital.com>). . . . Have you ever imagined being able to ask for directions in Zulu or toasting your big client at dinner in his native Czech? Imagine no more. IMSI's newest release, Easy Language: 25 World Languages offers more than 59,000 words and 9,000 phrases to learn and explore. There are numerous multimedia videos and photographic tours, word recognition exercises, and an online multilingual dictionary for \$39.95 (800/833-8082, 415/257-3000, <http://www.imsisoft.com>). . . . Before you need to speak the language of another country, you'll need to get there. PlanetWare's revised Northern Europe Travel Planner and new Mediterranean Travel Planner are available separately for \$44.95 but work together to deliver more than 40,000 sites and annual events in 21 major countries. The PlanetWare CDs let you travel by interest, not just by destination with its varied search options, and the automatic trip planner may have you waving goodbye to your travel agent as well (800/281-9823, 416/410-1886, <http://www.planetware.ca>). ■

NOTES

Ambush The Competition



You can't leave anything to chance when you decide to start a business. You need a plan for chipping away at the bigger, stronger competitors without being squashed by their superior numbers. In short, you need to learn *Guerrilla Business*.

This CD-ROM is more like a business seminar than a Master's degree in Business Administration. It's an excellent guide, however, that makes sure you don't overlook the numerous details. Some of the topics covered in the program include a Mission State-

ment, Marketing Plan, Organizational Plan, and a Summary of Financial Needs.

We especially liked the instructions and examples for each section. They tell you what kinds of things to keep in mind every step of the way. For example, you may be a marketing whiz, but have you thought about insurance? *Guerrilla Business* covers that information and includes an Insurance Update Form so you can keep track of your insurance needs.

The worksheets are another strength of the program. Several

financial documents are great for keeping track of vital information, such as Cash to be Paid Out, Profit and Loss, and a Balance Sheet.

Guerrilla Business helps you create a complete business plan with a Plan Checklist. It includes worksheets and guides you'll fill out to complete your business plan. You can save your plan and print any of the forms or worksheets.

This package makes sure you give your business the forethought that increases its chances of its success. *Guerrilla Business* runs on Windows 3.1 and Windows 95, and retails for \$49.95.

Guerrilla Business
Houghton Mifflin Interactive
(800) 829-7962
(617) 503-4800
<http://www.hminet.com> ■

Keys To Working Faster

We love shortcut keys. Anything that makes our jobs easier is fine with us. So we were intrigued when we received our copy of *SHORTKUTTS*. This groovy little utility for Windows 3.1 and Windows 95 is a database of every shortcut available in Word 97 and 6.0, Excel 97 and 5.0, WordPerfect, and Lotus 1-2-3. If they forgot any, we didn't find them.

In fact, we were surprised at the vast number of shortcuts available in the programs. Most of

us are familiar with the basics, like using the ESC or ALT keys. But we had no idea that we could display Excel 97's Formula Palette after entering a valid function name in a formula simply by pressing CTRL-A.

SHORTKUTTS (\$24.95) places an icon bar at the top left of the screen, just out of the way enough to not be annoying. The bar contains an icon for each of the four respective programs (shortcuts for Word 6.0/97 and Excel 5.0/97 are grouped together).



We clicked the icon for Microsoft Word in the *SHORTKUTTS* icon bar and started with the Key Subject list. This is where you choose a general topic, such as Document or Menu, and choose a command to learn its shortcut. We scrolled through the subjects and highlighted Menus 97 to see this area's shortcuts. We learned you can choose the first or last command in a Word menu by pressing the HOME or END key.

SHORTKUTTS carries a definite threat of information

SHORTKUTTS
provides tips for
working faster in
hundreds of
ways.

overload. There's no way to remember the vast collection of shortcuts. Fortunately, the program lets you print the shortcuts for a specific subject. It's a little faster to check this homemade cheat sheet than to look up a shortcut in the program itself.

SHORTKUTTS
Voortek Software Inc.
(888) 346-4616, (609) 346-4084
<http://www.voorteksoftware.com> ■

NOTES



The inviting interface of *Business Card, Ink & More* makes it easy to dive in and create a card-stock identity.

Small businesses can't afford to pay the professionals for every job. That's why the new product from DogByte Development, *Business Card, Ink & More*, is a good idea. Plenty of programs can help you make greeting cards, invitations, and posters, but here is one that creates something to represent your livelihood: your business cards.

The \$40 CD-ROM installs in minutes and offers a friendly, easy-to-use interface that makes creating your masterpieces easy. Shortly after you start, an information wizard box appears where you can type in all of your important business contact information. From there you select a business card style (anything from simple to elaborate designs) and what kinds of fonts, graphics, and special effects you want. The program plugs the information into a basic format. The tool set lets you fiddle with it all you want.

We cranked out our first set of business cards in no time flat. Then we started adding graphics (the program includes 1,000 clip-art images), textures, and other good stuff. We even imported our *Smart Computing* logo for personalized cards that approached the quality we receive from a printing professional. Of course, the quality of your home printer plays a big role in the card quality. Our laser printer produced results that

looked professional. An old, cheap inkjet printer may not produce so well.

The package includes a limited supply of business card stock. In addition to using the company's cards (which you can order online or over the phone), you can use products from the paper giant Avery, which are available everywhere. Prices for DogByte card stock are \$14.99 for 250 cards of

65-pound stock and \$16.99 for 250 cards of 80-pound stock.

The program also offers templates for creating letterhead, envelopes, and rotary cards (a nice touch). Other features worth mentioning are the spellchecker and a nice mail merge function that lets you put that long list of client names, addresses, and phone numbers to work.

Another benefit of using this product is avoiding the hassle of buying several thousand business cards at a shot from a professional

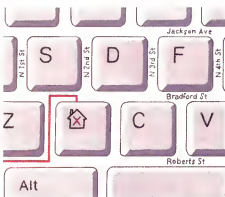
printer. This software lets you print them as you need them, making it easy to update changing information such as phone numbers, addresses, or even company logos. That's economical, which should appeal to everybody—especially someone running a small business.

Business Card, Ink & More
DogByte Development

(800) 936-4298

(213) 226-1480

<http://www.dogbyte.com> ■



Tailor-Made Maps

restaurants, businesses, and attractions

with a mouse click (there are more than 2 million listings). Looking for the nearest coffee shop? Just ask the software. Once you finish playing around, you can print a clear, colorful map to stuff in your pocket and take along.

These features alone make USA 98 a valuable tool. But Sierra sweetens the pot by throwing in some fine extras. The first is an easy-access Internet link to the MapQuest World Wide Web site,

where you can get door-to-door driving instructions. Add to that a book of travel discount coupons and the whopping 995-page travel tome "Frommer's USA Travel Guide," and you have a good deal for \$50.

USA 98: Streets & Destinations
Sierra

(800) 757-7707

(425) 649-9800

<http://www.sierra.com> ■

NOTES

Write It Electronically

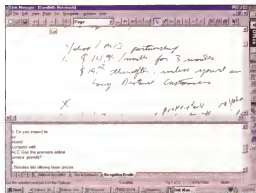
Old ways are still the best ways in many situations. It's usually easier to scribble notes (and doodles) on a pad of paper than lug a portable PC around for note taking. Plus, many of us simply like the feel of a pen in our hands rather than a Personal Digital Assistant (PDA) in our palms.

When it comes to managing those notes, however, computers have pen and paper whipped. PCs let you cut and paste, save, and file text files. Plus typed words are usually easier to read than that excuse for a scrawl you call your handwriting.

The CrossPad Portable Digital Notepad (\$399) combines the best

of both worlds. You insert a standard pad of paper into a large tablet that senses what you write, records it, stores it, and lets you upload it to your computer.

The special pen included with the set sends a radio signal to the Notepad, creating "digital ink" while you're writing. The Notepad attaches to a computer via a serial cable connected to a communications (COM) port on the back of your computer (the cable's included in the package). IBM's *Ink Transfer* software lets you send notes from Notepad to computer, where the text is stored



The CrossPad software studies your chicken scratch and gets better at recognizing it.

to bookmark any page in our notes and designate any word as a keyword you can call up later in the Ink Manager.

We found the Notepad's built-in digital menu easy to use. You just tap the Menu button with the pen tip to cycle through the menu options. But you have to remember to let your Notepad know with a tap when you change pages. If you don't, the Notepad will think you're still on page 1 when you've moved to page 8.

CrossPad Portable Digital Notepad
Cross Pen Computing Group
(800) 510-9660
(401) 333-1200
<http://www.cross-pcg.com> ■

in IBM's *Ink Manager* program (software runs on Windows 3.1 or Windows 95). To convert the scanned notes into editable text, you turn to the included handwriting recognition software.

The handwriting recognition software did a good job reading our handwriting, which baffles most humans. The software better recognizes your writing after you "train" it by writing sample sentences. Full training takes a couple of hours, but it's worth the effort.

The Notepad comes loaded with features. We liked the ability

Get Some Credit



Accessing credit information in *Credit Builder's* library is as easy as picking a book off the shelf.

Tired of being denied loans because you went a little crazy with your credit cards years ago? Frustrated by errors on your credit report? Looking for a good way to explain credit cards to your soon-to-be charging children? *Credit Builder 3.0* from Intelliquis covers all the above. It doesn't promise to fix bad credit, but it shows your options and offers some sound advice.

At its core it offers a wealth of credit information in easy-to-use formats. For example, templates and a word processing program guide you through the process of writing various letters to credit reporting agencies. Another feature lets you search for the best type of credit card for you. A credit "library" lets you read up

on everything from the latest credit card scams to recent credit-related laws. Just for good measure there are also tools for loan management and budget planning.

Credit Builder is not a magic pill for what ails your credit. In fact, the program warns against schemes that promise to "clean up" your credit history. But if you're serious about trying to solve your credit woes, or if you're just looking for a good source of credit information, this straightforward \$40 program might be the tool you need.

Credit Builder 3.0
Intelliquis Inc.
(801) 553-1127
<http://www.intelliquis.com> ■

Almost A Real Portable PC

Brother's new GeoBook is born of the admirable idea that you don't need to be rich to enjoy the fruits of portable computing. The product comes in two flavors: one with a 9.4-inch monochrome screen for \$599 (NB-60) and one with a 10.4-inch color screen for \$799 (NB-80C). Each sells for less than a standard, low-end portable PC because they aren't actually portable computers.

Brother isn't trying to pass GeoBook off as one, instead marketing it as "an easy-to-use product that delivers PC-like functionality." It's important that buyers understand the difference.

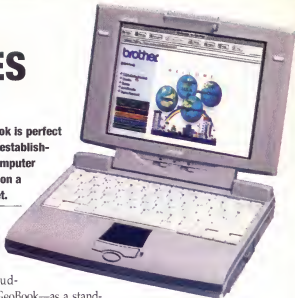
Brother calls GeoBook a Personal Digital Notebook. Instead of a hard drive it uses 1 megabyte (MB) of flash storage, which has no moving parts. It trades Windows for a simplistic operating system called Geos 3.0. It uses a proprietary software suite called *BrotherWorks 98* that includes everything

from a word processor to a planner. GeoBook does have some regular PC hardware. There's a 33.6 kilobits per second (Kbps) modem, a PC Card slot (for more credit-card sized flash storage), printer and monitor ports, and a standard diskette drive.

We tested the color NB-80C and found the strange operating system and *BrotherWorks 98* programs a bit uncomfortable at first. But both are easy to use, so we figured them out pretty quickly. Most of the programs are useable, if not exactly powerful. The keyboard is relatively comfortable, and the glidepad input device is OK. The 640 x 480 color display is a bit fuzzy, and the rechargeable battery doesn't last long. The modem works fine. The proprietary *GlobeHopper* World Wide Web browser is weak compared to the latest offerings from Netscape and Microsoft.

NOTES

The GeoBook is perfect for anti-establishment computer users on a budget.



We concluded that the GeoBook—as a stand-alone product—works exactly as advertised. It accomplishes PC-like functionality. We had problems, however, when we brought it together with our desktop PC. We had difficulties transferring word processing documents between our desktop PC and the GeoBook using a diskette. It seems filters in the *BrotherWorks 98* word processor handle *Microsoft Word* documents up to version 5.5 of Word only. *BrotherWorks 98* was unsure how to handle our Word 7.0 documents.

Brother includes a version of *BrotherWorks* on CD-ROM to install on your desktop PC. That

way you can create files that also work on your GeoBook. That only solves the problem of moving a document between the GeoBook and your desktop. What about sharing it with the rest of the world?

In the end, if you're looking for an inexpensive, easy-to-use PC substitute, examine the GeoBook. Just be sure you understand exactly what it is (and isn't) before you buy.

GeoBook NB-80C
Brother
(800) 284-4329, (908) 704-1700
<http://www.brother.com> ■

Much office-oriented software is complex. It lets you do nearly any task in six different ways, complete with charts, graphs, bells, and whistles. Sometimes, all you need is a nice little program that handles a nice little task without fuss. *Cricket!* is just such a program. It's designed to do one thing: replace your adding machine.

We found the program, whose window can sit on top of any other program, couldn't be easier to use. It works just like an ordinary adding machine. We crunched a few numbers and saved the results. One of the biggest advantages is the on-screen adding tape that lets you analyze your work and deal with

errors. You can, of course, print out your work if you'd rather have it on paper than disk. Another bonus is the fact that you can cut and paste the results from *Cricket!* into other programs, such as *Microsoft Excel*.

Cricket! seems like a deceptively small and uninteresting program at first glance. We soon learned that its convenience makes this program worth a second glance. It retails for \$18 and works with Windows 95, NT, and Windows 3.1.

Cricket!
Business Logic Corp.
<http://www.blcorp.com/proprod2.htm> ■

A Better Number Cruncher



DOS

SET DOS

To Work Your Way

The simple SET command can help you take control of many aspects of the DOS environment. This command controls the variables (what programs do) within the DOS environment (working space), much as a foreman oversees the workers in a warehouse.

When you type set at the C> prompt (with no parameters), you'll find a list of all variables currently working in your environment. This list probably contains variables such as HOMEDRIVE, TEMP, and USERNAME. These variables have purposes indicated by their names. For example, HOMEDRIVE stands for your hard drive (in most cases C:), TEMP handles the area where temporary files are stored, and USERNAME lists the name of the computer user, usually taken from registered software.

The SET command allows you to change the way these and other variables work, customizing DOS to automatically operate the way you require. Note that when you type set and make changes, your changes last only as long as the current session. When you restart (or reboot) your computer, SET changes made at the prompt disappear. Permanent changes require entering new commands in your Autoexec.bat file, and sometimes your Config.sys file. We don't have room to cover these alterations of system files, but we will cover the ways you can temporarily change how DOS does business.

■ **DOS Drones.** The DOS warehouse consists of dozens of variables, some already set by DOS, others you can set according to your preferences. Whenever you set new instructions with the SET command, DOS can locate and use the instructions you give.

When you type in a string, such as `set prompt=c:\howdy` (which changes the C>



prompt to read C:\howdy), DOS automatically converts the characters into capital letters; this way, you don't need to worry about entering the variable in lowercase letters. Every time you type in a new variable, DOS will place it in a directory with all the other variables, such as DIR and PATH. You can access this directory listing by typing `set` at the C> prompt.

The ways in which you can control environment variables vary. But most of the commands use simple formulas. You can use DIRCMD to control how the DIR command displays the files in your directories. You can use PATH to tell DOS where to find certain files; the PROMPT command allows you to play with the look of your C> prompt. With TEMP you can tell DOS where to store temporary files on the hard drive.

Other, less prominent variables include APPEND, the variable to find directories on the APPEND command's search path; COMSPEC, which leads you to the command interpreter that assesses everything you enter at the command prompt; CONFIG, which displays and lets you alter the configuration menu you see when you reboot; DOSHELL, the directory that holds the file for the DOSHELL application; and MSDOSDATA, which leads you to your computer's backup and antivirus files.

Let's look at how SET allows you to customize the operations of a few basic DOS variables.

■ **DIRCMD.** Adjusting this variable is one of the most common jobs for the SET command. DIRCMD lets you control the way DOS displays files in directories. For example, to view all files in reverse alphabetical order type `set dircmd= w/e` at the C> prompt. Now you'll get a differently ordered list whenever you type `dir`. You can use other DIR switches (added letters and symbols that change the flow of information) to vary the types of changes you make to DIR. For more information on these switches, type `help` at the C> prompt, which will give you a listing of terms and commands. Find the entry Switches and press TAB to move from column to column, your arrow keys to move up or down in the columns, and ENTER to select an item.

■ **PATH.** The PATH variable tells DOS where to look for a program file when you type something like `wp` at the C> prompt. To set a path for DOS, type `set path=` plus the directories you want to search when you enter a command.

■ **PROMPT.** It's easy to customize the look of your C> prompt. Type `set prompt=` followed by what you want the prompt to say. For instance, type `set prompt=c:\hello`, and your prompt will change to read "C:\hello". To set the prompt so it displays the date and time, type `set prompt=c:\pg`. As you may assume, you can have fun with this.

■ **TEMP.** For example, if you want to store files in a temporary directory, which holds temporary files (files created while you work in a particular program) call on the TEMP variable. Temporary files always save your work until you save the file under a specific file name. Type `set temp=c:\temp` at the C> prompt, and you'll have a new directory just for temporary files.

When using the SET command, be aware of spaces in the string and the equal sign. Even if you unintentionally leave a space, DOS will consider this a different variable and save it as such.

Another common error is omitting the equals sign altogether. This will return a message such as "environment variable (name) not defined." Don't be alarmed if this happens. Just retype the string as you did before and be sure to place an equal sign between the variable and value. ■

by Kay Prauner

Windows 3.1

Changing COM Port Settings

The Ports option in the Windows 3.1 Control Panel is not for the faint of heart or those easily dissuaded by a baffling interface. Unless you know what you're doing, the Ports' settings will make little sense, and changing them could cause some serious problems with your computer.

Control Panel tells Windows what peripherals you have installed, including notables such as modems, sound cards, and joystick controllers. Changing the settings can help Windows find those devices and communicate with them properly; but you also can create hardware conflicts that crash or cripple Windows.

You usually should be able to efficiently run your PC with its default settings—you shouldn't have to bother with the Control Panel. If you install new hardware and can't get it to work, however, you may have an interrupt request line (IRQ) conflict. You'll have to visit the Ports window to resolve the problem. To open the Ports window double-click Program Manager's Main group, then Control Panel and Ports.

■ **IRQ Conflicts.** If after installing a new communications expansion card, such as a

modem or sound card, you get on-screen error messages about a device conflict or a message that says a device is already in use, you may have an IRQ conflict. A device that stops working also points to an IRQ conflict. For instance, a modem that won't work after you install a camera controller.

PCs assign an IRQ number to each component so that when several components send commands to the processor, the processor can determine which component to serve first. The lower the IRQ number, the higher the service priority. The keyboard, for example, uses IRQ 1 and the diskette drive uses IRQ 6, so commands from the keyboard have precedence over those from the diskette drive.

Problems arise when two devices use the same IRQ number. Most communications cards will use their assigned IRQ number in the Ports window. If you put a card in the communications port 3 (COM3) slot, it will use the IRQ number assigned to COM3. Some cards, however, have an unchangeable preset IRQ, which can cause problems. If you install a controller for a mini camera, for example, and that controller is preset to use IRQ 4, it can

conflict with your modem on COM1. Devices on COM1 default to using IRQ 4. You'll have to try to change the IRQ number on the modem to resolve the conflict.

■ **Changing IRQ Numbers.** Here's how to change IRQ numbers to resolve conflicts or to follow the installation instructions for a new communications card:

In the Ports window, double-click the icon for the port whose IRQ setting you wish to change. A list of settings will come up; click the Advanced button. Click the arrow in the IRQ Number field for a menu of IRQ choices and select the new IRQ number. Don't use one of the IRQ numbers reserved for other parts of your PC (see table). Assigning a device the same IRQ number as the hard drive, for example, could cripple your computer. You can check which IRQs are in use on your PC by going to a DOS prompt and typing `msd`. Click the option to check IRQ status and look for unassigned IRQs.

After selecting an IRQ number, a prompt will tell you to restart the computer to complete the change. To finish, go ahead and restart the PC.

If you were correcting an IRQ conflict, check to see if it was resolved. If the conflict persists and changing the IRQ to another number doesn't help, you can try using the jumpers (small switches) on the newly installed card to change the IRQ number, if the card has them. (Check the card's documentation.) If it doesn't have jumpers or you still can't resolve the conflict after changing them, you may have to accept that the two cards can't coexist in your computer and remove one of them.

This can be a frustrating process, but unfortunately, there are no simple answers or explanations for solving IRQ conflicts. Luckily, the next time you buy a computer, these problems should be a thing of the past. Plug-and-play expansion cards, when coupled with Windows 95, go a long way toward making such problems a thing of the past. ■

by John Lalande

Typical IRQ Lines

In some systems, it's hard to check which device uses which interrupt request. Sometimes, you just have to make your best guess. This chart shows how most IRQs and hardware match up.

- 0 Timer
- 1 Keyboard
- 2 Link to IRQs 8-15
- 3 COM2
- 4 COM1
- 5 Sound cards, LPT2
- 6 Diskette Controller
- 7 LPT1, LPT3
- 8 Real-time Clock
- 9 Redirected IRQ 2
- 10 Available (network cards preferred)
- 11 Available
- 12 Available (PS/2 Mouse Port)
- 13 Math Coprocessor
- 14 Hard Drive Controller
- 15 Available

Windows 3.1

Undo Delete Damage

It happens to most computer users at some point. In a fit of desktop cleaning frenzy, often brought on by a frustratingly cramped hard drive, you begin deleting files suddenly declared unnecessary. During your momentary lapse of reason it seemed like a good idea, until you realized your spouse planned on using that birthday card address list you trashed. Windows 3.1 can bail you out in such situations, and save you from the doghouse, by retrieving deleted files with the Undelete function.

Undelete Magic. To undelete that address list file, find the Windows Undelete icon called MWUNDEL. It is probably located in the Microsoft Tools group, or you may find it in the Accessories group. When you track it down, open it by double clicking the icon. (NOTE: Depending on your system you may have access to Undelete through the file menu in File Manager; it's below the Delete command.)

This brings up the Microsoft Undelete window and a list of deleted files. Search the list for the deleted file in question (the first letter of the file name may now be a question mark). If it's not on the list, click the Drive/Dir button and select the drive and directory where the file previously resided.

Once you track down your file, you'll notice a condition description immediately to the right of the file name. You're in luck if that description reads Excellent or Perfect because an easy recovery will probably follow. If it reads Good, you have a chance, but it's going to be more difficult. If it's in Poor or Destroyed condition, using Windows 3.1 Undelete is a lost cause. (Undelete for MS-DOS might be able to help recover at least part of a Poor file. To read up on that option, go to the command prompt and type help undelete.)

To recover an Excellent or Perfect file select the file and then click the Undelete button. If the first letter of the file is a question mark (?), Undelete prompts you to replace the question mark with the correct letter. Typing in the letter and then clicking the OK button will prompt Undelete to instantly recover the file, changing its status in the list to Recovered.

Recovering a file in Good condition is a bit more complicated because the system may have partially fragmented the file. To begin

The default setting for Undelete is the Standard setting, which gives you a decent chance of recovering most of your files as long as the system hasn't saved any new ones in the same location.

The next setting is Delete Tracker. When you engage this level of protection you sacrifice a small amount of memory and a small amount of hard drive space because the PC keeps a list of where deleted files were once kept. In return you'll find most of your deleted files in Excellent condition.

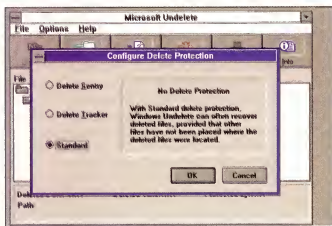
If that's not good enough, the best protection is Delete Sentry. Choosing this option requires the same amount of memory, but more hard drive space because it actually stores your deleted files in a hidden directory for a time. You usually find deleted files recovered through this setting in Perfect condition.

If you'd like to change the setting of your Undelete function from inside the Microsoft Undelete Window, left-click the Options menu item and select Configure Delete Protection. A new window will appear where you choose which level of protection you want. Make your selection, then click the OK button. If you pick Sentry or Tracker you'll have to select which drives you want to protect. Select your drives, then click the OK button.

An Update Autoexec.bat window appears, asking where you would like to save changes, in Autoexec.bat or Autoexec.save. Choose Autoexec.bat and click the OK button. Quit out of Windows 3.1 and restart your computer. The next time you need to recover a deleted file, your new level of protection should be in effect.

Hopefully you won't make a habit of throwing out files you need, but if you find yourself making the mistake more often than you like, consider upping your level of Undelete protection. It could be the smartest and easiest thing you do on your computer today. ■

by Tom Mainelli



Choosing your Undelete setting is easy, just click the Options menu item and select Configure Delete Protection.

the recovery process, you must select the file as above. Then, click the File menu and select the Undelete to Option. When the window with drives and directories appears, pick a drive other than the one where the file currently resides (for example, use a diskette in Drive A) and click the OK button. Barring any complications the recovered version of your lost file should appear on the new drive.

Better Luck Next Time. If you want to increase the odds of recovering future erroneously deleted files, you can change the Undelete setting. More protection costs you some memory and hard drive space, but it's worth it for some folks.

Windows 95

Desktop Shortcut Tips

Windows 95 users quickly realize that getting to an application, or data file, can mean going through a maze of menus, directories, or folders. Fortunately, Windows 95 (Win95) lets you create shortcuts. These icons placed on your Desktop make Win95 less labyrinthine. These shortcut icons are small programs (100 - 1,000 bytes in size) that direct your PC to an actual application or data file located in a directory on your hard drive. Double-clicking a shortcut icon will launch an application, open a folder, or open a data file.

■ Four Ways To Create Shortcuts.

Use the following instructions to create shortcuts to anything and everything you wish to place on your Desktop.

Method 1: Right-click anywhere on your Desktop, select New, Shortcut. If you don't know the directory and the application's program command, you will need to click the Browse button to look through the hard drive directories. We suggest browsing through the C:\PROGRAM FILES subdirectory first. There you will find many of your Win95 application program files such as Quark XPress.exe. Just highlight the program file, select Open and click Next. Type a name for the shortcut and click Finish. A shortcut for your application will be created and placed on your Desktop.

Method 2: Using Explorer (right-click the Start button and select Explore) go to the Start Menu directory of the Windows main directory (C:\WINDOWS\START MENU). There you will find some subdirectories filled with shortcuts to many of the applications installed on your Win95 PC. Just right-click the shortcut icon and drag it onto your Desktop. Select Copy Here in the pop-up menu box and release. You now can access the application directly from your Desktop.

Method 3: Don't know where the application or data file is located? Go to Start, Find,

Files or Folders and type the application, or data file, in the Named field. Next, set Look In to C:\ drive (your hard drive) and check the Include Subfolders box. Then, click the Find Now button to locate the program or data file. Right-click and hold the application, or data file, you want to create a shortcut to and drag it onto the Desktop. In the resulting pop-up menu box, select Create Shortcut(s) Here.

Method 4: If you know the location of an application or data file, you can go directly to its folder, or directory. Right-click the application's, or data file's, icon and drag it onto your Desktop and select Create Shortcut(s) Here in the pop-up menu box.

■ Some Helpful Shortcuts.

The following are some helpful shortcuts that will make your Win95 computing experience a little more enjoyable.

Shortcut #1

Drives. After double-clicking the My Computer icon on the Desktop, use Method 4 to create drive shortcut icons on your Desktop. Shortcuts to frequently used drives (such as the A: and C: drives) can be a big time saver. Without shortcuts, you have to first double-click the My Computer icon and then the appropriate drive. Creating one of these shortcuts can save you the extra step of opening the My Computer icon, which means you can have one less window open on your Desktop. Other

drives (besides A: and C:) that might make a handy shortcut include any network servers or removable disk drives (such as Zip and Jazz drives) you use frequently.

Shortcut #2

Printer and fax devices. While the My Computer window is open, double-click the PRINTERS folder and use Method 4 to create a Desktop shortcut to your printer and/or fax device. Now you can drag files to the printer icon to print them instead of having to open them before you print them. Dragging them to the printer icon tells the computer you just want to print the file. So, instead of walking the computer through the process—opening the file, printing it, and then quitting—you can let the computer do all the work by itself. You can drag more than one file at once, too. The computer will queue the files for printing. Faxing works the same way.

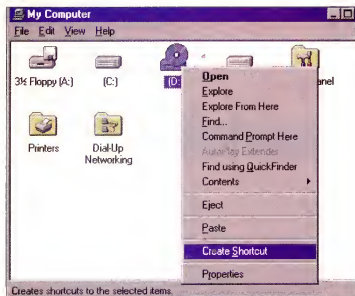
Shortcut #3

Explorer. Windows Explorer is a program you will probably use often. It's excellent for manipulating, moving, and copying files and is the best way to

search for a file on your hard drive. It makes sense, then, to make a shortcut to it on your Desktop. The shortcut means you only need double-click to run it, which can be faster than digging through the Start button's



Make your life a little easier. Save time in Windows 95 by creating Desktop shortcuts to frequently used programs and files.



Create a shortcut to your CD-ROM drive. Open the My Computer icon on your Desktop and right-click the icon for your CD-ROM drive. In the pop-up menu choose the Create Shortcut command and then click Yes in the next Window.

levels to launch it. To make Explorer more readily accessible, use Method 1 to create an Explorer shortcut icon on your Desktop. Explorer's command line is C:\WINDOWS\EXPLORER.

(NOTE: When launching Explorer for the first time, it may not show all the files in a directory or folder. On the Explorer menu bar select Options from the View menu. Next, click the View tab and then select the Show All Files radio button. Explorer now shows all the files.)

Shortcut #4

Control Panel. If you are constantly launching the Control Panel, use Method 1 to create a Control Panel shortcut icon on your Desktop. The directory and command would be C:\WINDOWS\Control.exe. Now, instead of using the Start button, which makes you wait for the SETTINGS folder to open, you can just double-click the shortcut. It's also handy if you have a hard time remembering how to get to the Control Panel.

Shortcut #5

Frequently used programs or data files. Create shortcut icons to all your regularly used applications and/or data files so you don't need to burrow through directories to open them. This makes opening programs and files as simple as double-clicking an item on the Desktop. It also makes it easier to open files. For example, if you create a shortcut to Microsoft Word and want

to open a text document in Word, you can open the directory that contains the text file and drag-and-drop the file onto the Word shortcut to open it. The other way to open a text file in Word is more cumbersome. You must first launch Word, then use the Open command and dig through directories until you find it. You also can use this shortcut for multiple files. If you have several text files you want

to open in Word, you can select them all (hold down the CTRL key as you select them) and drag-and-drop them onto the Word icon. All the files will then open in Word.

This feature works with a host of other programs and files. For example, the Netscape Navigator Web browser can open text and Joint Photographic Experts Group (JPEG) image files, so create a Netscape shortcut for convenient, drag-and-drop handling of text and image files.

You also can organize your Desktop by making folders with shortcuts to similar files or programs. For example, create a folder with shortcuts to all your Internet applications, such as World Wide Web browsers, File Transfer Protocol (FTP) clients, and Web page editors.

First, create a Desktop folder for each respective group of programs or data files. Just right-click anywhere on the Desktop and select New, Folder. Press the DELETE key and type in a name, for example Web Site Programs, Office, or Home Data Files. Use Methods 2, 3, or 4 and place the respective applications or data files into the appropriate newly created Desktop folder. This would decrease the clutter of individual shortcut icons on your Desktop and make the most frequently used programs and data files too double-clicks away (one to open the folder and one to launch the shortcut).

Shortcut #6

Regular disk maintenance. To encourage regular use of the three disk maintenance programs packaged with Win95 and to make them easier to find and launch, create (as in Shortcut #5) a Disk Maintenance folder. Then using Method 4, create shortcuts to C:\WINDOWS\COMMAND\Scandisk.exe; C:\WINDOWS\Defrag.exe; and C:\PROGRAM FILES\ACCESSORIES\Backup.exe, and then drag them to the new folder. Periodic disk maintenance is one of the best ways to avoid catastrophic disk failures and loss of data. That makes a shortcut reminder on the Desktop—even if it does add a little to the clutter—a good idea.

Deleting Shortcuts. You may delete a shortcut icon by right-clicking the icon and selecting Delete. A Confirm File Delete window appears asking "Are You Sure You Want To Send 'shortcut name' To The Recycle Bin?" Click Yes to send it to the Recycle Bin. You will need to right-click the Recycle Bin, highlight your deleted file, and select Delete from the File menu to actually delete the shortcut file (or you can select Empty the Recycle Bin). This will not delete the actual program or data file that it shortcuts to.

Shortcut #1

Delete the OEM Online Services folder. Some PCs are pre-loaded with an Online Services folder containing sign-up programs for America Online, CompuServe, and the Microsoft Network. If you already have an online service, you might free up around 35 megabytes (MB) of hard drive space by deleting these programs. Again, be sure to delete the actual files (Cs3kit, Setup25i, Setup32, and Wowkit in the C:\WINDOWS\OPTIONS\CABS directory), not just the shortcuts..

Shortcut #2

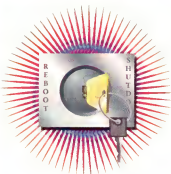
Delete the Microsoft Network (MSN) Sign-up icon. If you are an MSN member or already have an online service, Go to Start, Settings, Control Panel, Add/Remove Programs, Windows Setup tab, and uncheck The Microsoft Network in the Components window. Click Apply and then OK. Restart your PC and the Microsoft Network Sign-up icon is no longer on your Desktop. ■

by Steven Sweet and John Lalande

Basic Training

Regardless of the operating system you choose, there are a few elementary functions you should understand. This section is your one-stop guide to learning these crucial first steps in DOS, Windows 3.1, and Windows 95. Use it to learn your operating system and see whether others offer a smarter way to work.

REBOOT & SHUTDOWN



Shutting down your computer is as simple as flipping the power switch on the power strip or the computer, right? Wrong. Even if you use DOS or Windows 3.1, which don't have shutdown commands or options, there are some things you should do before turning off your computer or even just **rebooting** (restarting) your system.

For the same reasons you shouldn't just switch your computer off when you want to shut

it down, you shouldn't just press CTRL-ALT-DELETE or the Reset button when you want to reboot. You run the risks of losing unsaved work and possibly damaging programs in use. Quit all open programs, instead of simply cutting power, before you reboot or shut down your computer. Some programs rearrange or change important resource files while they're in use, so it's important they have a chance to put things in their place before you turn off the computer. You also can damage programs if you turn off the power while they are reading or writing a file that's needed for the program to function.

Of course, if your computer crashes, you don't have a choice. You'll have to press the reset button to unlock your system. But, if you need to reboot just to install new software or apply a new system configuration (such as changing the resolution of your monitor), take a few seconds to properly restart your computer.

For all three operating systems, the following key steps will help you properly shut off or reboot your computer.

■ MS-DOS 6.22

Before you reboot or shut down your system, the most important thing to keep in mind is that you must quit any open programs. You should also eject any diskettes in the diskette drive when the drive's read/write light is off. Pulling out a diskette, shutting the computer down, or rebooting the computer while the read/write light is on can cause serious damage to the diskette. Lastly, give your computer a few seconds to quit programs and return to a DOS prompt before

you shut it off. You shouldn't shut it off if you can hear the computer accessing the hard drive. When all is quiet—or, at least several seconds have passed since the C> has appeared—go ahead and turn off or reboot the computer (DOS doesn't have a software shutdown procedure). To reboot, you either can press CTRL-ALT-DELETE or press the reset button on your computer's case (generally located on the front of the computer).

■ Windows 3.1

Just as in DOS, you need to close any open programs before you shut down or reboot your computer.

If you are shutting down your system, it is extremely important that you exit Windows. (Windows 3.1 doesn't have a shutdown utility.) To do this, go to the File menu in Program Manager and select Exit Windows. If you still have open programs, Windows will tell you to close them first. If there are no open programs, you'll receive a message saying This Will End Your Current Windows Session. Press the OK button, and Windows will quit, leaving you with a DOS prompt. After ejecting any diskettes (be sure the read/write light is off!) it's safe to turn off your computer.

When you try to reboot by pressing CTRL-ALT-DELETE, your computer will not immediately restart. Instead, you'll be greeted with a blue screen asking whether you want to reboot your computer or return to Windows. If a program has crashed and locked up the system, Windows will also give you the option of quitting that program and returning to Windows. If you experience a crashed program it's best to tell Windows to quit that application, then save your work and close any other open programs. After you quit all the programs, exit Windows and reboot. Even though you quit the program that crashed the computer, the computer is more likely to freeze after a program crash, so it's always a good idea to reboot and give your computer the equivalent of a clean slate.

Sometimes CTRL-ALT-DELETE won't help with a locked-up program. In that case, press the Reset button on the computer's case.

If your computer has not crashed, but you need to reboot anyway (perhaps to make a setting change take effect), it's best to quit all open programs, exit Windows, and, once in DOS, eject any diskettes and reboot.

■ Windows 95

Shutting down and rebooting is quite different in Windows 95 (Win95). It's not only easier than in Windows 3.1 or DOS, but the process is also more conscientious about making sure that your work is saved before you quit. When you tell the computer to shut down, it quits all running programs and then checks for any unsaved files. If it finds a file, it will ask if you want to save the file.

In Win95, CTRL-ALT-DELETE still is the essential key combination for restarting and rebooting your computer. After pressing the key combo, you're given several options in the Close Program window. Pressing CTRL-ALT-DELETE again will reboot. You can select a program from the list of programs currently running and then click the End Task button to shut down that program. This comes in handy if your computer locks up. You usually can tell which program has crashed by looking for the program with "(Not Responding)" appended to its name. You also can return to Windows by pressing the Cancel button or shut the computer down by pressing the Shut Down button.

The other option for shutting down your computer is to go to the Start button and select Shut Down. The computer will ask whether you are sure you want to: Shut Down The Computer, Restart The Computer, Restart The Computer In MS-DOS Mode, or Close All Programs And Log On As A Different User. To shut down, click the Shut Down The Computer radio button and then click Yes.

Just as with DOS and Windows 3.1, you also can restart your computer by pressing the Reset button on the computer's case if your computer doesn't respond to CTRL-ALT-DELETE. If your computer hasn't crashed, you also should remember to quit any open programs and save your work before restarting.

RENAMING FILES, FOLDERS, & DIRECTORIES



Sooner or later, you'll need to rename a file or folder. The two versions of Windows make the process quick and simple, but that old standby DOS makes a good showing with some formidable functionality.

■ MS-DOS 6.22

DOS' RENAME command is one of its most straightforward and intuitive tools. The command, which is shortened

to REN when you enter it, works like this:

```
ren [path]filename1 filename2
```

You don't need the path if you are in the directory of the file or the directory you wish to rename, but if you aren't, you could do something such as this:

```
ren c:\email\received june
```

After this command, the file called Received is renamed June.

Keep in mind that RENAME will not move files. You can't, for example, do this:

```
ren c:\email\received a:\ june
```

If you want to move a file from one directory to another, you'll have to use the MOVE command.

DOS does, however, offer a feature that Win95 lacks: the ability to rename multiple files at once. Say you wanted to change all the files in a directory that end in .TXT to have a .DOC suffix. The RENAME command can do it using a wildcard. A wildcard is a character that stands for an entire group of others. The * wildcard in *.DOC, for example, represents all files that end with the .DOC extension. The DOS wildcard symbol tells it to perform a command on any file whose ending matches the expression following, preceding, or surrounding the wildcard. Here's how to rename a group of files:

```
ren *.txt *.doc
```

Another example would be if you had a group of files with the same file extension (for example, Newhead.doc and Newcard.doc) and you wanted to change the main file name. Using wildcards, RENAME could do that, as well in a command like this:

```
ren new*.doc old*.doc
```

This command would take the example files from above and rename them Oldhead.doc and Oldcard.doc.

Just remember, you have to take the good with the bad. DOS might be handy at renaming large numbers of files at once, but it can't rename a lot of files (or any file, for that matter) to have the same long name. For example, DOS would be unable to rename a series of files starting with sf (for example, Sf01.txt, Sf02.txt ...) to start with sanfrancisco because of DOS' eight-dot-three rule. It dictates that file names can have an eight-character file name, followed by a three-letter file extension, such as .DOC, .TXT, or .JPG. If you try to name a file and exceed the eight-character limit in the main file name, DOS will truncate the name to include only the first eight characters. Keep the new filenames in line with the eight-dot-three rule to avoid problems.

One more important caveat: Don't rename important system files, such as Autoexec.bat or Config.sys, unless you know what you're doing.

■ Windows 3.1

The renaming process in windows depends on what you want to rename. Your program groups and program files (the

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■ Windows 95

Shutting down and rebooting is quite different in Windows 95 (Win95). It's not only easier than in Windows 3.1 or DOS, but the process is also more conscientious about making sure that your work is saved before you quit. When you tell the computer to shut down, it quits all running programs and then checks for any unsaved files. If it finds a file, it will ask if you want to save the file.

In Win95, CTRL-ALT-DELETE still is the essential key combination for restarting and rebooting your computer. After pressing the key combo, you're given several options in the Close Program window. Pressing CTRL-ALT-DELETE again will reboot. You can select a program from the list of programs currently running and then click the End Task button to shut down that program. If the computer locks up, you can crash by looking at the taskbar, pressing the Cancel button, and then pressing the Shut Down button.

The other option is to click the Start button and then click the Computer, Restart MS-DOS Mode, or Different User. If you click the Computer button, the computer will reboot.

Just as with DOS, you can use the CTRL-ALT-DELETE key combination to quit a program before restarting.

RENAMING FILES, FOLDERS, & DIRECTORIES



to REN when you

ren [path]filename

You don't need to specify the file or the directory name, only the path.

ren c:\email\received june

After this command, the file called Received is renamed June.

Keep in mind that RENAME will not move files. You can't, for example, do this:

ren c:\email\received a:\june

If you want to move a file from one directory to another, you'll have to use the MOVE command.

DOS does, however, offer a feature that Win95 lacks: the ability to rename multiple files at once. Say you wanted to change all the files in a directory that end in .TXT to have a

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icons that launch applications) can be renamed right in Windows. Just click them, press ALT-ENTER to pull up their properties, and enter a new name for the program or group in the Description field. You can enter names up to 40 characters long and include most special characters such as blank spaces and question marks.

For files and directories, however, you must use File Manager. Double-click the Main group and File Manager and find the file or folder you wish to rename. Click it to select it, then go to the File menu and select Rename. Enter the new name in the To field and press OK.

In Windows 3.1, file names must conform to DOS' eight-dot-three rule. You're allowed eight characters for the name followed by three characters for the file extension (for example, .DOC and .TXT). File Manager lets you type in a long file name, but will only use the first eight characters. So, a file you renamed Myresume98.doc would be shortened to Myresume.doc.

Also remember that using the Save As feature in Windows programs does not actually rename a file, it merely saves a copy of the original name with a different name, leaving two files in place of one. The only way to really rename a file is through File Manager.

If you have a bunch of files with the .TXT file extension and you want to change them to .DOC files, File Manager could rename all the files at once, providing they're in the same directory. A utility like this can be handy if you prefer working with *Microsoft Word* and don't like having to switch the File Type field to ".TXT files" each time you want to open text files stored on your computer in Word.

To rename multiple files, first launch File Manager and select all the files you want to rename. You can save time by clicking one file, then holding down the SHIFT key and clicking a file below it. File Manager will select those two files, plus any files listed between them. Pressing the CTRL key while clicking a file will select a single file and any others you click while holding the key down.

Once you select the files you wish to rename, go to the File menu and select Rename. In the To field, enter an asterisk (*) followed by the new suffix you'd like the files to have. For example, if you wanted to change a bunch of .TXT files to .DOC files, you would enter *.DOC in the To field.

■ Windows 95

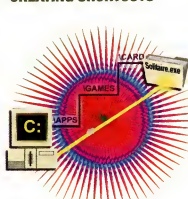
Renaming files is easiest in Win95. First, you'll need to find the file you want to rename. Double-click the My Computer icon and then double-click the drive holding the file (for example, C: and A:) and continue to open folders by double-clicking until you get to the file you want to rename. Then right-click the file. Select Rename from the list of options that appears. If you start typing or press the BACKSPACE key, Windows will delete the old file name and let you enter a new one. After typing in the new file name, press ENTER to click the file name twice (two single clicks). A cursor will then appear, letting you edit the text. After

correcting the file or folder name, press ENTER to complete the change.

File and folder names in Windows can be as long as 255 characters and include a variety of special characters, including blank spaces. You can not, however, use the characters /, \, :, ;, ?, ", <, >, and | because Windows needs those for special functions, such as to signify directories or commands. Also remember that even though you can have a long file name in Win95, if you look for the file through a DOS prompt, you'll need to look for a short version of the file name—New orleans.doc, for example, would appear as Neworl-.doc.

Just as with Windows 3.1, using the Save As command does not actually rename a file—it merely saves another copy of the file with a different name.

CREATING SHORTCUTS



Everyone has a few programs or files they use more often than others. Unfortunately, these files sometimes get buried several levels down in subdirectories. To access them, you have to burrow through all those subdirectories to reach the particular file or program. There are, however, ways to avoid digging through those subdirectories to find those files. You'll save

yourself time, thus improving your efficiency and taking some of the tedium out of using your computer. With Windows, shortcuts also let you reduce the clutter created by hordes of open folders on your Desktop and help you to stay organized. Win95 offers the most extensive features when it comes to shortcuts, but all is not lost if you are looking for ways to speed your work in DOS or Windows 3.1.

■ MS-DOS 6.22

In DOS, you should be able to run the programs you use the most at any time, regardless of what directory you are in. For example, even if you're in C:\APPS\GAMES, you should still be able to run a program in C:\APPS\UTILS simply by typing its name. If not, you need to include the directory of the program in the path field of Autoexec.bat.

For example, if you wanted to run a program Solitaire.exe in C:\APPS\GAMES\CARD by simply typing *solitaire* from within any subdirectory, you need to be sure that C:\APPS\GAMES\CARD is included in the Autoexec.bat file. Change to your root directory by typing *cd *, then type *edit autoexec.bat*. Once Autoexec.bat is open, look for a line

beginning with PATH. Scroll to the end of this line and type a semicolon (;) followed by the directory you want to add. For example, you would change "path C:\DOS;C:\" by adding:

path:\dos;c:\c\apps\games\card

Next, you would press ALT-F then and X to exit (answering Yes when asked to save changes before exiting).

The last thing you can do to improve your efficiency is to rename the files that start your programs. One well-known example is shortening a file so that you can launch Windows from DOS by typing win instead of windows. Similarly, you could shorten other program names. Solitaire.exe could be renamed Sol.exe. Simply use the DOS rename command, which can be shortened to REN:

ren solitaire.exe sol.exe

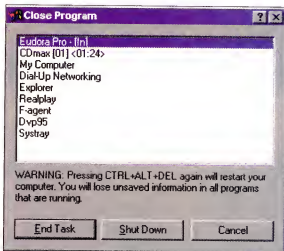
Some frequently used programs could even be shortened to a single letter, provided you remember not to rename other programs to the same single letter. Telix.exe for example, could be renamed T.exe, so that simply typing T and pressing ENTER at a DOS prompt would launch a program called Telix.

■ Windows 3.1

Fewer options are available for improving your efficiency in Windows 3.1, but it's still possible to create shortcuts. After all, each icon you see in Program Manager is not an actual program, but rather a link that tells Windows what program to run. That means making copies of the Program Manager icons doesn't make a copy of the entire program, just the link that points to the program's executable file. For example, copying the Microsoft Word icon will not copy the whole application that takes up several megabytes on the hard drive. The process just copies the small link.

You should feel free to make copies of these icons and place them where needed. For example, if you tend to have the Applications group more often than the Accessories group, but use Terminal often, placing a copy of the Terminal icon in the Applications group could be convenient. To do this, click the icon you wish to copy, then go to the File menu and select Copy. You will be prompted to select a group. Click the pull-down menu and select the group you want to place the copy in (in this case, Applications), then press the OK button.

Another way to save yourself some time is to make a link to any DOS programs you use regularly so you need only double-click an icon to launch them. Without such shortcuts, you're stuck firing up a DOS prompt or digging through File Manager to launch the program by double-clicking its executable file. To make a program icon for a DOS program, open



In Windows 95, the Close Program window gives you the option of shutting down the computer or quitting programs.

the program group where you'd like to place the icon. If you have a DOS game, for example, open the Games program group. Now go to the File menu and select New. First, you'll want to enter the program's name in the Description field. If you know the program and the path (for example, you know the program file is located at C:\GAMES\Hearts.exe), you can enter it in the Command Line field. When finished, press OK and an icon for the DOS program will be placed in the program group you selected. If you don't remember the exact path to the program, press the

Browse button, find the program, and press OK.

■ Windows 95

Win95 offers the most features for creating shortcuts. You can create shortcuts to programs, as well as individual files, network servers, and disk drives.

First, you'll need to find whatever it is you'd like to create a shortcut to. Double-click the My Computer icon. If you don't already have a shortcut to your disk drive on the Desktop—and want one—right-click the icon for 3½ Floppy (A:) and select Create Shortcut from the pop-up menu. You'll get a dialog box informing you that you can't place the shortcut there and asking whether you'd like to place it on the Desktop instead. Answer yes. Now you can access your diskette drive directly from the Desktop. You can do the same thing for other devices, such as the hard drive, CD-ROM drive, and any network file servers you're connected to.

To create shortcuts to individual files, folders, or applications, you'll have to dig a bit deeper. Double-click the icon for your hard drive (C:) and continue to open subdirectories until you find the file or folder you want. Again, right-click the item and select Create Shortcut from the menu. The shortcut will be placed in the same folder as the original file. To place it on the Desktop, you need to drag and drop it there. To do this, click the shortcut file and hold the mouse button down as you move the mouse. Once you maneuver the file to the Desktop, release the mouse button to drop the shortcut there. To place the shortcut in another directory, leave the folder with your shortcut open while you look for the target directory in another window. Again, to get started, double-click the My Computer icon and dig through the directories until you find the one you want to place the shortcut in. Then go back to the directory with the shortcut file and drag and drop it into its new home. ■

by John Lalande

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Certainly, Bookshelf can't deliver an exhaustive body of information on a subject, nor does it cover every imaginable topic; but we were surprised, for example, that a search for "hard drive" in the Computer/Internet Dictionary gave us nothing. It does offer a wide range of facts and tools, however, including the handy Quick ZIP Code finder, and its ready connection to the Internet opens a world of searching capabilities.

Compton's Home Library: The Complete Reference Collection 1998

Like Bookshelf, Compton's gives you 10 reference books that contain thousands of articles, photos, videos, and audio clips. They include: *Compton's Concise Encyclopedia*, *1997 World Almanac Book of Facts*, *Merriam-Webster Concise Handbook for Writers*, *Compton's Concise Atlas* (with more than 300 maps), *Merriam-Webster's Geographical Dictionary* (3rd Edition), *Columbia University Complete Home Medical Guide* (3rd Revised Edition), *World History: A Dictionary of Important People, Places, and Events*, *Compton's Internet Directory*, *Webster's New World Dictionary*, and *Webster's New World Thesaurus*.

A feature unique to Compton's is the two types of hyperlinks within the articles. One is a purple internal link, which leads you to other articles/entries in that book. The other is an external link, indicated by the icons of the books, which takes you to the rest of the library.

The atlas also has links. All maps link to each other and the Geographical Dictionary. A link, or "hot point," is indicated by a change in the cursor when it hovers above one on a map. You can zoom in for a closer look (a global, continent, or country view) or switch to another map and view it at the same level (country to country, for

instance). The maps in the atlas are good but limited. The most detailed map you can access is of a country, so our search for "Chicago" in the atlas yielded only a bit of information on the city and a photo of the Sears Tower.

Compton's considers its multimedia section its 11th, or bonus, reference book. Just like in Bookshelf, you can browse through the multimedia holdings independently of the other reference books. It provides more than 5,000 still images, more than 50 videos and animations, and more than 300 tables, maps, and graphs—all of which are linked to the other reference books (should you choose to search that way).

We appreciated this collection's view options, which you can access via the small icons

conducting research, including links to the Compton's Web site and your preferred word processor. One final tool is the Notebook, accessed through the Tools button at the bottom of your screen. It lets you make notes and cut and paste selections from articles.

(NOTE: As we went to press, the latest version of *Compton's Home Library*, *Compton's Reference Suite Deluxe*, was released for \$79.95. It includes *Compton's Interactive Encyclopedia '98 Deluxe*, *The Complete Reference Collection*, and *Compton's Interactive World Atlas*.)

Encarta 98 Reference Suite Deluxe

Encarta 98 is so extensive that it requires five CDs: two for the *Encarta 98 Encyclopedia*, one for *Encarta Virtual Globe*, one for *Bookshelf 98*, and one for the *Research Organizer*.

Since a more detailed review of the encyclopedia appeared in a recent issue of *Smart Computing* (February 1998), we will only highlight some of its features. Pimpointer is the name of the article search tool, and it displays search results in an outline to the left of your screen that lets you quickly sift through all of them.

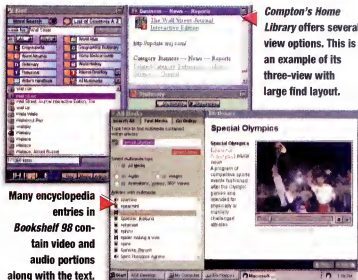
Like Compton's, Encarta provides extensive results. A search for "Wall Street" returned a description of the financial district, plus a list of links to explore for

more information. Some of these categories included stocks and securities, insider trading, prominent investors, and supervision of financial markets. To see how detailed these categories are, we opened stocks and securities and read about mutual funds. There, we could learn about types of funds, investment objectives, methods of distribution, and shareholders' rights.

The Wall Street page also included a link to *The Wall Street Journal* plus a history of stock market crashes. Hovering over the More Information About This Subject box in the upper-right corner of the screen displayed a drop-down menu offering even more avenues of finding financial information.

A search on Bill Clinton gave us a slew of articles about his life and presidency, with photos, tons of links, and an audio clip from his first inauguration ceremony.

One disadvantage to Encarta's breadth is that not all the images and audio clips are in



at the bottom-left corner of your screen. You can have a two-view, or split screen; a three-view, with either a large article or large find area; or a full-screen view.

A test search for "Wall Street" in all reference books yielded a dictionary definition of New York City's famous financial district and a link to an interactive edition of *The Wall Street Journal* on the Web. Results for any all-book search appear in alphabetical order and with every item listed. We found this layout a bit easier to decipher than Bookshelf's approach, where it was necessary to open some of the search results to find more results.

A search on Bill Clinton gave us a biographical sketch, names of places from the geographical dictionary, and some information on the politician in the *World History* book. The information was adequate, but not too recent.

The array of tools in Compton's gives you many more options for searching, viewing, and

the same CD. So, a prompt may appear, asking you to insert a different encyclopedia CD when accessing a multimedia clip.

Be careful when you enter the Media Features section because you may not want to leave. It has world maps, historical and cultural timelines, topic treks, a media gallery, virtual tours of places such as Boston's Fenway Park, InterActivities, and collages. You may open any one of these features while viewing an encyclopedia article.

It's easy to stay in the Online Features section as well. Browse the online library, which is a collection of reference sources; pick up tips for searching the Web; and visit the Encarta Web site to download updates. The most notable online feature is Yearbook, which is a collection of updates for your encyclopedia.

The Research Organizer is Microsoft's answer to Compton's Notebook. With it you can take notes, cut and paste text and images, produce an outline, and cite sources—then move it all to your word processor.

More than maps, Encarta's Virtual Globe blows the competition away. It's a complete resource, with a home screen that gives you the following options.

Find a Place, which lets you search for cities, countries, mountains, deserts, rivers, lakes, and seas. Unlike Compton's atlas, Virtual Globe doesn't limit you to three levels of maps. For one thing, you can view the same place via several types of maps, such as comprehensive, political, and physical. To obtain a closer look, zoom in with the magnifying glass icon.

Another viewing option is to click an area to obtain a pop-up menu with links to maps related to the one you're viewing. For instance, when viewing a map of Baton Rouge, La., we could access a map of that state, the Mississippi River Delta and Wetlands, or a U.S. map.

Learn About the Earth, which teaches you how to read maps and discusses modern cartography. The four sections here cover everything from the physical world to the world of people.

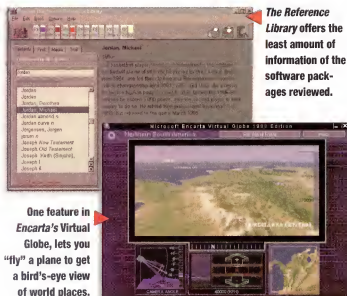
Take a World Flight, the most fascinating, innovative feature of Virtual Globe. You can view a place three-dimensionally, as if you were flying over it in an airplane. Furthermore, you can control the speed of your "airplane" and the angle of your view. A small overview map to

the side shows you where you are in relation to the rest of the country or continent. The images are a bit grainy, and every spot on the globe isn't available for viewing with such a flight, but our trip over Medellin, Colombia, gave us a close look at the terrain of the area.

Even with its higher price, Encarta is the best reference suite we reviewed. If you don't need everything it offers, you can purchase its components separately.

Penguin Hutchinson Reference Library

The most innovative feature of Penguin Hutchinson is noticeable when you launch the program. A Today's Date box displays births,



The Reference Library offers the least amount of information of the software packages reviewed.

The Media tab gives you an alphabetized list of the articles in the open books that contain photos and/or illustrations. (Only the encyclopedia, dictionary, and quotation book contain these images.) The photos are sharp, and buttons in the upper-right corner let you print and copy them. Once you enlarge the photo from the thumbnail size, further "zooming" only isolates the photo on your screen; it doesn't enlarge it.

The fourth tab, Trail, is a history list of your most recently searched for items.

We liked the simple layout of this package. Icons for the books sit on a "shelf" at the top. Clicking one opens the icon of the book and lets you search in that book. You can search in any combination of books you specify or conduct an

All-Books search.

Our search for information about President Clinton best indicates how Penguin Hutchinson compares with the other suites. The most recent information was from 1995 (thus, no reelection news) and lacked any images (no audio clips are available in this package). So we choose another famous newsmaker, Michael Jordan. Again, the results were skimpy, which left us thinking that this package is best used as a resource for words, not for in-depth research. ■

by Rachel Derowitsch

For More Information:

Bookshelf 98
\$54.95
Encarta 98 Reference Suite Deluxe
\$79.95
Microsoft Corp.
(800) 426-9400, (425) 882-8080
<http://www.microsoft.com>

Compton's Home Library: The Complete Reference Collection 1998
\$44.95
The Learning Company
(800) 227-5609, (617) 494-1200
<http://www.comptons.com>

Penguin Hutchinson Reference Library
\$49.95
Cambridge Publishing Inc.
(800) 992-8781, (818) 993-4274
<http://www.cambridge.com>

deaths, events in history, and quotes from that day in previous years. This is part of the *Helicon Book of Days*, one of seven reference books included in this CD. The others are: *Hutchinson Encyclopedia*, *Longman Dictionary of the English Language*, *The New Penguin Dictionary of Quotations* (with more than 10,000 entries), the *Chronology of World History*, *Roget's Thesaurus*, and *Usage and Abuse* (a handbook of language).

The four tabs on the left of the screen—Contents, Find, Media, and Trail—constitute the Card Index. Contents displays every entry from every open reference book. You can scroll to find what you want or type in a term. (Unfortunately, the results appear prematurely if you pause even slightly as you're typing.) The Find tab lets you conduct a search in all the books. When you select an article to view from the results list, the name of the reference book in which it is found appears above the index list.

Navigator & Explorer Together

How To Use Both On The Same PC



To access information on the World Wide Web, you need a Web browser. Two popular browsers today are *Netscape Navigator* and *Microsoft Internet Explorer*. Although it doesn't take two browsers to view the Web, don't expect everything out of only one.

That's because some sites are designed to look and operate better in one browser than another. And because browser features aren't identical, the look of text, graphics, and headings on a Web page can change depending upon which browser and platform you use to view them.

To observe browser differences, use Explorer to visit Microsoft's home page at <http://www.microsoft.com>. Certain text elements are displayed in blue. Visit the same site with Netscape Navigator, and these text elements appear in black and are in a different type size.

Similarly, if you visit Netscape's home page (<http://www.netscape.com>) with *Netscape Communicator 4.x*, you can see a tabbed Netcenter drop-down menu with hyperlink options. If you access Netscape's home page with Explorer, the Netcenter drop-down menu doesn't appear.

If you're not ready to take a side in the browser war and your hard drive has room for new applications, consider installing Netscape Communicator 4.x (or Navigator 4.x) and Internet Explorer 3.x or 4.x.

You can easily download free copies from the Microsoft and Netscape Web pages. Netscape made both Navigator and Communicator free downloads in late January 1998.

If you arrive at a Web site that proudly proclaims "best viewed with" some browser, you'll be well-equipped to handle the situation if you

have both browsers. There's no performance penalty for having both applications on your system. In fact, when you install special plug-ins designed to enhance browser performance, plug-in setup automatically searches your system for installed browsers and configures those you select for use with the plug-in.

Certain applications come bundled with one or the other browser also. For example, *Mindscape's PrintMaster Platinum*, the 1998 *Grolier Multimedia Encyclopedia*, *Claris Corp.'s ClarisWorks Office*, and *Corel Corp.'s WordPerfect Suite 8 Professional* are shipped with Navigator. *Microsoft Encarta 98* and *Microsoft Office 97*, not surprisingly, come with Internet Explorer.

■ **Optimizing Two Browsers.** When you have two or more browsers installed on your hard drive, only one is registered as the default, which is the standard setting of the computer engaged when the user does not denote a specific alternative. If you launch the browser that isn't the default, you might see the following message appear on-screen: "Navigator is no longer registered to handle Internet Shortcuts. Would you like to register Navigator as your default browser?" or "Internet Explorer 3.0 is not currently your default browser. Would you like to make it your default browser?"

You can prevent Explorer from displaying this message in Windows 95 (Win95) by left-clicking the box to the left of Always Perform This Check When Starting Internet Explorer. It's located in the Internet Explorer dialog box. Or, you can right-click the Internet Explorer shortcut icon, click the Programs tab in the Internet Properties dialog box, then click the box to the left of Internet Explorer Should Check To See Whether It Is The Default Browser. This will remove the check mark.

Because only one program can be the default browser, how do you choose? The answer is simple. Always make the current browser the default. In other words, if you want to use Netscape, but Internet Explorer is the default, make Netscape the default (or vice versa) by answering Yes to the default question.

The default browser is the one Win95 associates with HTML (.htm) files. This means that if you're running Explorer, and Netscape is the default browser, your computer will launch Netscape when you click a file with an .htm file extension or vice versa. If you click any .htm file in the WINDOWS\HISTORY or WINDOWS\FAVORITES folders, they are opened in the default browser even if you used the other

browser to create them. So, to avoid confusion, when a dialog box pops up inquiring whether you want to make the browser you just launched your default browser, answer Yes, even if it's only a temporary state of affairs.

If you've personalized your home page using Explorer 3.x, and you want it to appear when you launch Navigator, you're out of luck. Navigator doesn't recognize the settings configured in Explorer. You could, however, reconfigure this home page directly in Navigator, then modify Navigator's Preferences to launch this page instead of the default Netscape home page. To modify Navigator Preferences, launch Navigator, select Preferences from the Edit menu, click Navigator in the Category window, enter the Web address for the personalized home page in the Location field of the home page area, then click OK.

■ **Sharing Bookmarks.** If your system has an installed version of Navigator when you install Internet Explorer, Explorer will import Navigator bookmarks when it is set up. However, bookmarks added to Navigator after setup won't automatically transfer to Explorer. To use newly added Netscape Bookmarks with an installed version of Explorer, launch Netscape, then choose Bookmarks then Edit Bookmarks from the Communicator menu or press CTRL-B. You also can left-click Bookmarks on the Location Toolbar, then select Edit Bookmarks from the drop-down menu.

With Netscape running in the background, launch Explorer. Shrink Explorer's browser window so it doesn't completely hide Navigator's Bookmarks window underneath it. Select Organize Favorites from the Favorites menu to open Explorer's Organize Favorites dialog box.

Click a Netscape bookmark you want to copy to Explorer Favorites, then drag the highlighted item into Explorer's Organize Favorites window. The Web address now appears as a Shortcut To icon. You can rename this shortcut in the Organize Favorites dialog box by clicking it, clicking the Rename button in the dialog box, and then editing the Web address as needed.

Microsoft also provides an easy way to transfer Navigator bookmarks to Internet Explorer. Download the *Netscape Bookmarks to Internet Explorer Favorites Converter* utility available from <http://www.microsoft.com/msdownload/download.htm>. After downloading the utility, quit any browser currently running, navigate to the folder containing the conversion utility, double-click Winbm2fv.exe to launch it, then follow the instructions.

You must navigate to the Netscape folder containing your Navigator bookmarks, typically `Bookmark.htm` residing in `C:\PROGRAM FILES\NETSCAPE\COMMUNICATOR\PROGRAM\DEFAULTS` for Communicator 4.x or `C:\PROGRAM FILES\NETSCAPE\NAVIGATOR` for Netscape 3.x. Double-click `Bookmark.htm` to select it, then click Convert Bookmarks button. Your Internet Explorer Favorites folder will be updated automatically.

■ Plug-Ins vs. ActiveX

Controls. Users who switch from Navigator to Internet Explorer can continue to use plug-ins downloaded and installed for use with Navigator. Although plug-ins are designed to extend Navigator's capabilities, Explorer also can take advantage of these enhancements.

You don't have to do anything special to access a Navigator plug-in when running Explorer. Just visit a Web site requiring the plug-in. Explorer will detect the need for this plug-in, search your hard drive for it, then run the installed plug-in without your intervention.

Although Navigator 4.x offers support for Microsoft's Windows-based ActiveX controls (many of which perform the same functions as



The appearance of a World Wide Web page depends in part upon which Web browser you are using.

Navigator plug-ins), Navigator 3.x can't directly use these controls. There's a special ScriptActive Navigator plug-in, however, that you can try free for 10 days from Excite's NCompass division. Designed for use with Navigator 3.x and 4.x, it enables Navigator to view and use embedded ActiveX controls. The ScriptActive plug-in can be downloaded from the NCompass Web site at <http://www.ncompasslabs.com>.

Can't decide which browser to use? Forget about making a choice and enhance your Web explorations by having both Explorer and Navigator at your disposal. ■

by Carol S. Holzbreg Ph.D.

Go From Two To One

If you are content to surf the 'Net with just one Web browser, but you have more than one browser installed, you can recapture hard drive space by deleting the browser you use least.

In Windows 95, go to the Start menu, select Settings, click Control Panel, then double-click Add/Remove Programs. When the Add/Remove Programs Properties window is displayed, scroll the list of installed applications in the Install/Uninstall software list. When the browser you want to remove appears in the window, click it, then click the Add/Remove button. Follow the on-screen instructions, and the program will be removed from your hard drive.

To recapture even more hard drive space after using Add/Remove Programs,

double-click My Computer, double-click the icon of the (C:) drive, then double-click the folder labeled Program Files. If you've just removed *Microsoft Internet Explorer*, right-click the Internet Explorer folder, then select Delete from the context-sensitive menu. This sends all remaining files and folders in the Internet Explorer folder to the Recycle Bin.

If you right-click the Recycle Bin and click the Empty Recycle Bin command, Internet Explorer files and folders will be permanently deleted. Follow these same instructions when removing *Netscape Navigator*. After using Add/Remove Programs, navigate to the Netscape Program Files folder to delete either the Netscape Navigator or Netscape Communicator folder. □

Networks For Newbies

**Connections Are Everything
For Productive PCs**

Personal computers are useful tools for all kinds of tasks, from creating and editing text, spreadsheets, and graphics to playing games.

Today's average computer is considerably more powerful, and easier to use, than anything we had just a few years ago. But there is a way to make even the most powerful PC more useful: connect it to another PC. Or even better, a whole gaggle of them. While a single PC is a great tool, linking multiple computers into a network makes each one more useful. A network even can breathe new life into an old, slow computer.



That's why more people—from small-business owners looking for more from their current machines to home computer users pooling resources with a second PC—are getting connected and setting up networks. Couple this trend with the continuing rise in popularity of the Internet—the world's largest network—and you have compelling reasons for all computer users to have a basic understanding of networks. From employees of large, networked corporations to folks who have a single PC at home with a modem, everyone should understand what networks are, why they're so useful, and how they work.

■ **The Beauty Of Networking.** The fundamental reason anyone connects two PCs is to make life easier. It does so most obviously by letting you share files. Let's say, for example, you have a small office with five computers that aren't networked. Now let's say one of your business partners finishes the company's latest business proposal on her PC. For you to look at the proposal on your PC, she must save it to a diskette, pop the diskette out of her computer, walk over, and hand it to you. You then must insert the diskette and retrieve the file. To pass it on, you must get up and walk it over to the next person and so on.

"We call that a 'sneaker net,'" says Jim A. Johnson, business unit manager in the Small Business Networking Group for Intel. Running around with a diskette is an inefficient way to do things. If you network your PCs, however, each person could access that business proposal from any PC. That means efficiency, no footwork, and fewer worries about "Who has the diskette?"

Networks also help save money by sharing peripherals. Let's say a family of four has three computers: one for Mom, one for Dad, and one for the kids. They can afford only one good monochrome laser printer, however. So if Mom is using her standalone and wants to print, she has two fairly unappealing options. She can unplug the printer, pick it up, and connect it to another PC when she needs to print, or she can save the document she needs to print to a diskette, kick Dad off the PC connected to the printer, load up her file, and print her document. With a network, everybody has access to that single printer. There's no need to move hardware, diskettes, or family members to do the job.

Printers are the most common peripheral a network lets you share, but let's say only one of your three PCs has a CD-ROM drive. If you

need to access a CD-ROM, you could put it in the PC with the CD-ROM drive and access it from the other PCs through the network. The same process works with hard drives, modems, scanners, tape backups—you name it. Why have three of something when one (and a network) will do?

The third, and increasingly important, capability of networks is communications. "A network turns your PC from just a personal computer into a communications device," Johnson says. You can share files, hardware, and even E-mail. A network lets you send and receive inner-office E-mail and can offer easier ways to send and receive Internet E-mail and connect to the World Wide Web (more on that later). Anyone with E-mail, for business or personal use, can attest to its value.

So by now the concept of a network, and all the things it has to offer, probably sounds good. But it's still just a concept. For a better grasp of the power of networking, you must first understand how one works.

■ **Networking 101.** Users who have seen networks in action, but are unfamiliar with their inner workings, often assume they're big, messy, confusing combinations of hardware, software, and cable that require a

team of experts to keep them running. For many networks, that's a fair assessment. Over the years, however, networks have become more standardized and a little less improvised. The following primer of network concepts should lay out the basics. (NOTE: *The following is not a tutorial on how to build a network and you should not use it as one.*)

The easiest way to dive into networks is to start from the bottom. To do that we start with a couple of basic definitions. Most networks you'll encounter are of the **local-area network (LAN)** variety. That means the computers that make up the network are usually in close proximity (the same room, building, or group of buildings) and physically connected by local cables. The LAN's big brother is the **wide-area network (WAN)** which uses an outside source, such as telephone lines, to connect LANs separated by long distances. Our discussion will stick to the peer-to-peer and client/server LANs.

■ **Peer-To-Peer Networks.** The simplest way to create a network is to connect two or more PCs. Of course, it's still a bit more complicated than just plugging in a cable. The first thing you need is a place to plug in that cable: the **network interface card (NIC)**, a circuit board containing the hardware necessary

The Rise Of Intranets

While networks offer great capabilities, they can be confusing. This is especially true in a large corporation with a complex network made up of hundreds or even thousands of PCs and a multitude of servers. Sometimes finding what you need amongst all those files is almost impossible. That's why intranets are becoming so popular.

An **intranet** is an internal network that works like the Internet and the World Wide Web. In fact, intranets rely on the same set of protocols as the Web, such as Transmission Control Protocol/Internet Protocol (TCP/IP). That means you can navigate an intranet using your standard Web browser.

That's important because it lets people use a tool they're comfortable with to find and use office information. For example,

with a standard network an employee might have to sift through several drives and dozens of folders to find files on hiring policies, insurance plans, dress codes, and other company policies. With a good intranet, that employee could navigate through those human resources documents using a Web browser and find the needed information with little or no hassle.

And that's just the start. Imagine how much easier accessing databases and other often-cryptic chores could be using your trusty Web browser. The possibilities are endless. Another positive aspect of a good intranet is that a company can make the information (or parts of it) available to traveling employees, clients, and potential customers through a gateway to the Internet. □

for connecting a computer to a network). These cards install in your PC like any other expansion card.

A variety of NICs are available. Intel makes several types, and Johnson says the most popular one is the Intel EtherExpress PRO/100+ Management Adapter, which transmits data at 10 megabits per second (Mbps) or 100Mbps, depending on what type of transmission method you require.

Ethernet is the most common type of LAN transmission method. At 10Mbps it's called Thin Ethernet, and at 100Mbps it's called Fast Ethernet. Of course, the 10Mbps standard uses cheaper cabling than the faster variety, but most experts like the fast one, as the slower speeds can become a hindrance as you add faster computers to your network.

Laying out the cabling is often the most demanding part of setting up any network, says Byron Sands, director of the Communications Product Group at Compaq Computer Corp. "If all the computers are in one room you can just lay the cables on the floor between desks," he says. "If it's a larger operation, or you don't want to see those cables out, then you probably need someone to put them in the wall for you."

Regardless of whether it's on the floor or in the wall, when you create a peer-to-peer network you can string the computers together one-by-one or connect them to a single device called a **hub**. Intel's Johnson likens this piece

of hardware to an extension cord. "The extension cord, in a power setting, lets you plug in multiple plugs into the cord. The hub is the same type of idea; you plug all of your PCs into this hub." From that hub, all the PCs can communicate.

Whether you string your PCs together, or use a hub, all the computers in a peer-to-peer network operate as equals. That means no single unit is in charge, and users on any one machine can access files and hardware on the others. So, for example, if you set it up this way anyone can access your hard drive, or CD-ROM, and you can do the same.

Of course, one of the most important reasons for setting up a network is printer sharing. In a peer-to-peer network an option is simply to connect the printer to one of the PCs. This works, but it has its drawbacks. "The problem with hooking up a printer directly off a single PC is a big print job running through your PC can cause you to lose some of your processing power, which can be a real irritant," Johnson says. Intel offers a solution called the Intel NetPortExpress PRO/100. If you're using a hub, you just plug this unit into the hub, then plug in your printer (or printers—the high-end version has two parallel ports and one serial) and everyone can access it without bogging down a single PC.

One advantage of the peer-to-peer network scenario is it doesn't require specialty software

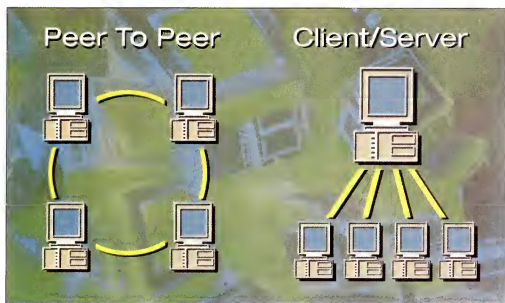
if you're running an operating system such as Windows 95 (Win95) or even Windows 3.11. Both operating systems offer simple peer-to-peer networking capabilities. Most people will tell you these systems are not the best for networking, but they'll suffice in most small peer-to-peer scenarios.

■ **Client/Server.** Another type of network, client/server, becomes necessary when there are simply too many computers to successfully operate a peer-to-peer network. The fundamental difference between the two types is that the client/server setup requires at least one more important piece of hardware called a **server**. It's generally a PC that is more powerful than the other PCs connected to it on the network. Whereas all computers in the peer-to-peer network are equals, in the server/client network all the individual PCs (the **clients**) operate through the server. That means each client PC connects through its NIC to a hub that then connects to this server. If you want to share files, they must reside on the server. If there is a single printer for all, it's run through the server. If you send E-mail messages, they travel first through the server.

In a small company using a client/server network a single server will probably handle the job. In a larger company, where there may be hundreds or even thousands of clients, it often takes multiple servers to do the job. There might be a single server that handles file sharing, another that connects to the database, another for E-mail, and still another for printing. That's essentially how the Internet works. When you use the Web, you're tapping into data from servers around the world.

Another important distinction between the two major network types is that while peer-to-peer usually requires no specialty software, client/server does. Something has to handle all of those extra chores, and that something is a **network operating system (NOS)**, the foundation software that lets computers work together and communicate). Two popular NOSes are Microsoft Windows NT and Novell NetWare.

Rick Balazs, product manager for Novell's NetWare for Small Business, says Novell offers different versions of NetWare for different networks. A small business probably won't have



In a peer-to-peer network, all the computers ordinarily share equal weight, meaning each computer works on its own. In a client/server network, the server is the most powerful computer. Other computers called clients connect to the server so they can share its capabilities.

anyone dedicated to keeping the network running, so it needs a NOS that reflects that. "We've taken it easier to install and administer," he says. "We've taken the 'fear factor' out of networking, so if you have a little bit of computer experience you can install our product."

"As we move from the desktop computing world to a more networked world, there's nothing to be afraid of. We're making the process as easy as possible."

■ **One Big Network.** Another concept worth discussion is how being part of a LAN can make it easy to connect to everyone's favorite network: the Internet.

The key to the Internet's booming popularity is its ability to let huge networked companies, or a single user, connect to the rest of the world. All that talk about global economies and stuff is for real. When you can buy a book from a company a world away through the Internet, things are changing.

One of the coolest things about networks is how they can make connecting to the 'Net easier for everyone involved. For example, Compaq offers a product called the Compaq 808 that acts as both a hub and an easy connection to the Internet through a fast Integrated Services Digital Network (ISDN) line. ISDN lines carry voice, video, and data more quickly and efficiently than a standard analog phone line. Compaq's Sands says this device lets multiple users connect to the Internet at once. "When someone launches their browser, the 808 automatically calls up the Internet service provider (ISP) and connects them to the Internet," he says. "The next person (on the network) who launches their browser won't have to wait for the dial-in because the channel is already open."

This concept is important, he says, because without a network each person in an office must dial in individually. That means every employee needs a modem and an ISP account.

Intel offers a similar product, called the Intel InBusiness Internet Station, that supports both the ISDN line and the regular analog phone line. The ISDN line is faster, but costs more. The speed difference grows more touchy when you add one, two, or more users on the same line, but either way, you're saving money and time by using a networked connection rather than individual dial-up connections.

■ **Network Computer Or Networked PC?** Finally, we couldn't write an entire story about networks without clearing up a topic that confuses many people. Network Computers (NC) and networked computers are not the same thing. Pretty easy to see why people get the two mixed up, is it not?

Briefly, an NC is a sealed computer that has limited built-in capabilities and requires a client/server environment. Most of these machines lack items such as diskette drives or CD-ROM drives. The point of an NC is that the server side of things controls everything. For



"All PCs should be networked. To not have your PC networked in one fashion or another is really losing out on a big opportunity to become more productive in what you do."

Jim A. Johnson, Intel

example, the server always provides new software. This setup exists because the people who run networks love it, says Intel's Johnson.

"It's a sealed, fixed-function PC. That means there's very little chance to get viruses," he says. And there is less chance that eager computer users can install programs on their machines that don't belong. NCs appear primarily in businesses, where folks desire simple network computing and a central administration area. There has been talk, however, of home NCs that take advantage of the

Internet and new features and functions connected with the Java programming language. One of the biggest selling points of these types of computers is that with less hardware the machines will cost less than a standard PC.

A networked PC, on the other hand, is a fully-featured PC (like those most of us use) that's part of a network. A regular PC has more flexibility than an NC since you can add hardware and software to it. Networking such a PC offers the ability to share files and hardware and improves communication capabilities. These computers, however, are usually more expensive than the NC variety.

The increased capabilities of the sub-\$1,000 PCs have put an interesting spin on the NC vs. Networked PC debate. These computers, which generally come with all the standard PC equipment come close to the asking price of some NCs, which should make the debate even more interesting.

While computer manufacturers, industry experts, and consumers might not be able to decide which type of computer to connect to a network, almost everybody agrees that making that connection will be a vital part of computing in the future.

"All PCs should be networked," Johnson says. "To not have your PC networked in one fashion or another is really losing out on a big opportunity to become more productive in what you do." ■

by Tom Mainelli

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Intel
(800) 538-3373
(503) 264-7354
<http://www.intel.com>

Novell
(800) 453-1267
(801) 222-6000
<http://www.novell.com>

New Bus Gathers Speed

USB's Success Tied To Release Of Windows 98

Nearly every new computer has one or more, but many computer users don't know the purpose of those funny-looking ports accompanied by that hieroglyphic-style icon on the backs of their computers. The ports represent a computing revolution—set to take off later this year—that will result in a new and better way to install and configure hardware peripherals.

These ports serve as connectors for the **Universal Serial Bus (USB)**, a bus technology that should make installing hardware about as difficult as plugging in a toaster. (A bus is the hardware connection that links the central processing unit [CPU] of a computer to its hardware peripherals.) USB sounds like highfalutin technology, but it is a simple concept. You plug any USB-compatible hardware peripheral into the USB port of your computer, and the hardware will automatically install and configure itself, so it is ready to use. You can leave your computer case closed while upgrading or adding hardware; you don't even need to **reboot** (restart) your computer.

USB might sound like a giant leap in hardware installation technology, but USB-compatible products haven't exactly overwhelmed the marketplace since USB chipsets showed up in some computers shipped in 1996.

■ **Out With The Old.** If you ever installed hardware on computers with Peripheral Component Interconnect (PCI) and Industry Standard Architecture (ISA) buses, you know that the USB promise is an installation dream come true. To upgrade hardware on PCs using PCI or ISA buses, you must open your computer case and tinker with interrupt request lines (IRQs), dual inline package (DIP)

switches, and device driver settings to make sure the device works without causing system hardware problems.

USB greatly simplifies the process. Plug your USB-compatible device into the USB port, and your computer will automatically configure it for use within a few seconds to a few minutes. USB peripherals also support **hot swapping**, meaning you can unplug one peripheral and plug in another while the computer is operating.

Users can **daisy chain** up to 127 peripherals to USB ports and **hubs** (USB ports found on USB peripherals), eliminating the need for serial and parallel ports and IRQ settings once USB products become more ubiquitous in the marketplace. (Devices are daisy chained by connecting the first device to the computer, the second device to the first device, the third device to the second, and so on.) If you want to

daisy chain parallel interface devices without USB, you must use the **Small Computer System Interface (SCSI)** standard, which is more complicated to set up, allows only seven hardware devices in a daisy chain, and transfers data at 8 bits per second (bps). That's tortoise-slow compared to USB's 12 megabits per second (Mbps).

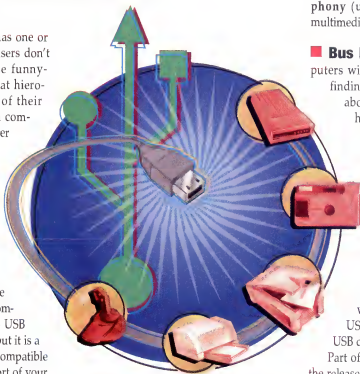
This speedy data transfer rate, known as **bandwidth**, lets USB computers handle data-intensive applications such as video, **telephony** (using a PC as a telephone), and multimedia games.

■ **Bus Drivers Needed.** Finding computers with USB ports is much easier than finding actual USB peripherals. In 1997, about 70% of all computers shipped had USB ports, according to Dataquest, a computer industry research firm. In 1998, all desktop computers and 80% of notebooks will ship with USB capabilities.

Only about 20 peripherals are available to consumers in early 1998, but that number is growing. At least 75 USB peripherals (including hubs) will be available in the first half of 1998, according to Susan Shaw, who handles public relations for the USB Implementers Forum. Over 155 USB devices are also under development.

Part of the explanation lies in the delay in the release of Microsoft Windows 97, whoops, Windows 98 (Win98), which is scheduled for release in June. Win98, currently in final testing, has all the **device drivers** USB devices need. (A device driver is a program that lets a hardware peripheral communicate with a computer.) Windows 95 (Win95) lacks the needed driver software. Until Win98 arrives, the peripheral manufacturer must provide the software—a fact we learned during our USB testing described later in this article. In short, users must have Win98 for USB to work as its designers intended.

Because Win98 will provide these drivers, many peripheral vendors are waiting for Microsoft to release the operating system rather than include the software with their products, according to Steve Whalley, an Intel official who serves as chairperson of the USB Implementers Forum, the organization that oversees USB standards and development. "USB will rise on the bandwagon and hype surrounding Win98,"



Whalley says. Many companies have no experience writing driver programs and are relying upon Microsoft to include the programs in Win98, he says. Whalley predicts that USB products will begin to swamp the market once Win98 hits store shelves.

The market research firm Frost & Sullivan agrees. The market for USB peripherals, which netted \$320.6 million in 1997, is projected to earn \$1.36 billion in 1998 and \$18.84 billion in 2004, according to the firm.

Many early arrivals in the USB market are scanners and digital cameras. They're gaining popularity because of their easy installation and their growing use with the Internet, Whalley says. Other popular peripherals you can expect to see include audio devices and game peripherals, such as force feedback digital joysticks, which move in response to on-screen actions. The adoption of USB as a standard bus will increase the market for computer peripherals, Whalley says, because users will be more willing to buy more easy-to-install hardware.

■ **Putting USB To The Test.** To see if USB works as promised, and to show you what is involved in installing a USB peripheral, we installed Logitech's PageScan USB scanner on two computers: a 200 megahertz (MHz) IBM Aptiva with Win95 and a 200MHz CXTX running a beta version of Win98.

Windows 95. The PageScan scanner came with a CD-ROM that included the needed drivers not provided by Win95.

On the Win95 machine, we inserted the CD-ROM and were greeted with Logitech's Welcome Setup screen. We clicked Next, and a dialog box appeared asking us to reboot our computer so the new USB device driver could load. We clicked Yes, and the Update Device Driver Wizard appeared. This appeared after the PC rebooted?

We then clicked Next to let the wizard find the appropriate driver on the CD-ROM. It gave us the choice of manually searching for another driver if we wanted; we declined this option by selecting Finish. The driver for the scanner was then installed. A dialog box prompted us to plug in the scanner. We plugged it into the USB port and clicked OK.

A new wizard guided us through the setup process. It let us choose between an Express and a Custom installation; we chose Express.

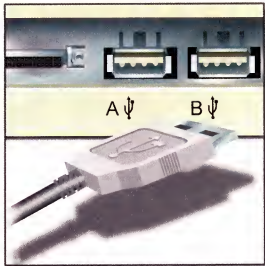
The appropriate files were then installed. Next, a prompt told us to run a calibration card (which came with the scanner) through the scanner to ensure accurate color settings.

With the setup complete, we skipped the Readme file and other tutorial information. We pressed the button on the scanner to call up its on-screen interface. We inserted the image we wanted to scan, clicked the Get Clip button, and saw the image on-screen and ready to edit about 20 seconds later.

In this test, we had our USB scanner connected to the computer and an editable image on-screen in about four minutes. Most of the setup time passed while the computer searched for the device drivers on the CD-ROM included with the scanner.

Windows 98. On the Win98 machine, the results went beyond easy and quick to amazingly fast because Win98 had the driver we needed. USB is supposed to work better with the enhanced Plug-and-Play capabilities of Win98, and our results confirmed that.

We plugged the PageScan scanner into the USB port, and the operating system detected the driver needed, without using the CD-ROM, and its setup instructions. After the computer located the driver, we pressed the button on the scanner to call up the on-screen interface. In 20 seconds, we had an on-screen image that was ready to edit. Total time from having an unplugged scanner to an on-screen scanned image was about 50 seconds.



This USB scanner gave us what we were looking for: A way to install hardware quickly that required no steps to follow (in Win98) and no technical knowledge on our part. For users who prefer to use their computer rather than fiddle with its components, this is indeed a welcome improvement. ■

by Robert Frauss

For More Information:

USB Implementers Forum
<http://www.usb.org>

The Price Of USB

You might expect peripherals that use Universal Serial Bus technology to be more expensive than their less-advanced Peripheral Component Interconnect counterparts, but that's not necessarily the case.

Most Universal Serial bus (USB) peripherals you'll find in stores will cost slightly more than PCI models, according to Steve Whalley, an Intel official who serves as chairperson of the USB Implementers Forum. For example, the Logitech PageScan USB scanner we tested (see main article) has a street price of \$229. Logitech's PageScan Color Parallel scanner has a street price of \$200.

Other products, however, will be less expensive because they are USB models,

Whalley says. The USB version of the Intel Create & Share Camera Pack, for example, is cheaper than other versions of the videoconferencing hardware suite Intel offers. The USB version has a street price of \$180. The PCI version costs \$260, and the PCI version with a built-in modem costs \$350.

"Any time you can eliminate an add-in card or power supply, you will see lower prices," Whalley says.

USB peripherals will drop in price once they become more prevalent after the release of Microsoft's Windows 98, Whalley says. USB scanners, for example, will cost less than \$200. □



In Search Of Specialty Software

Today's software shoppers sometimes feel like the storied Ancient Mariner who saw "water, water everywhere" but not "any drop to drink." Many users with specific computing needs find themselves surrounded by programs and still searching for the perfect software tool. Say you want to track the breeding habits of racing pigeons or the progress of students in your ninth-grade algebra class. Software designed specifically for your needs might not be on the retail shelves thanks to market forces. Even makers of the best-selling software pay tens of thousands of dollars per software title to get it on the shelves of major chains. Programs catering to special interests simply can't muster the capital to compete.

Don't despair. In a global population of billions, it's unlikely you're the first person to desire the particular piece of software for which you're searching. Cook up some motivation and break out the elbow grease. Specialty software is within your reach.

■ Places To Look. Even though software hunts may be new to you, rely on the same skills you've always used to learn about products. Word-of-mouth is one of the most powerful tools in business. Just as bad press can effectively kill a product, a solid product will sometimes sell based on a positive buzz

alone. With this in mind, talk to others in your field of business or interest for recommendations on what they use. Typically when folks are happy with a product they're willing to share the information. If they've been down the same road, they might even know a shortcut.

Teachers, for example, can get advice from other teachers, the local or regional board of education, or a nearby teacher's college. Continuing education programs that help bolster educator skills may have suggestions as well. Ask your school board to include such a presentation at the next city-wide teacher in-service.

Conventions are often hotbeds of information, not only for teachers and business professionals, but for enthusiasts and hobbyists, too. Developers of unique software may not have a large enough market to obtain space on store shelves, but they'll try to sell their wares where they have an audience. Look for upcoming events in your field of interest.

Local community colleges often host informal and formal meetings regarding computer software. Classes might be offered where you can obtain help and advice on where to find specialty software products. Contact them for some pointers in the right direction.

If you're new to a particular field and don't even know where to begin, be brave and pick

up the phone. Call a professional in that field and ask for suggestions. Initially you may feel intimidated, but it's worth it to find just what you're looking for.

Publications designed for individuals and businesses in specific fields are a great source for specialty software. Catalogs, trade magazines, and newsletters often feature advertising from companies who have developed software in that particular field. Check the classified sections of hobbyist magazines also. Our check of a few special-interest titles on the newsstand revealed ads for flight planning software in *Plane & Pilot* magazine, Confederate military history titles in *Civil War Time Illustrated*, and ham radio software in *73 Amateur Radio Today*. The same publications may have an editorial section that reviews products by topic you won't see in more mainstream magazines.

Editorial publications such as *Smart Computing* often at least mention unusual applications in news and new software sections. This magazine's sister publication, *PC Today*, features software end users discussing unique professional programs every month in its "Computers at Work" section. There you'll read about why the product works for them, as well as glitches or troubles they may have had.

■ Surf & Search. Online resources, not surprisingly, are perhaps the greatest of all when it comes to finding less-than-mainstream software titles. The minimal skill and investment requirements of World Wide Web sites make the online world the hot marketing opportunity for many small-scale programmers. A basic World Wide Web search may pull up dozens of choices, or at least one good alternative. If you have no luck with your first try, switch to a different search engine and try again.

Surf for sites that regularly review and discuss new specialty software. Many of these can be found with a generic search, inputting the topic and the word "software" in the search box. For example, SuperKids (<http://www.superkids.com>), an online guide to children's software, regularly reviews new educational software. It also checks around for the best prices.

Another location that reviews software for kids is Thunderbeam.com at <http://www.thunderbeam.com/w/m/index.html>. This site doesn't mince words; if the product is banal, the

reviews say so. Thunderbeam.com includes the price, platforms, and purchasing information for the reviewed products. Specialty sites like The Basketball Highway (<http://www.bbhighway.com>) often review programs specific to one interest. The highway covers different basketball coaching programs including Extreme Software's *Assistant Basketball Coach '98*, a program designed to make coaching, scouting, and score-keeping a snap.

These sites are by no means the only ones on the Web that provide this type of service. Do some surfing and find one that works for you.

Once you locate some potential programs, you can usually find a link to the manufacturer's or publisher's company home page. If the software isn't sold directly from that site, a phone number will usually be listed, or there will be links to where you can purchase the product.

Whatever your interest or profession, almost certainly someone else shares it and has designed a Web page extolling its virtues. As soon as you find one, often times you'll be just a hyperlink away from others offering useful information. Special interest topics abound. Teachers, for example, will find the Web packed with sites relating to their profession. If graphics flip your switch, look for some of the many pages that talk about design, as well as what type of software you need to succeed.

Through the Internet you also can gain access to the motherlode of off-the-wall programs: **shareware**. This is software you can download and try out for free, but technically you must then pay for it if you want to keep it. Oodles of programs are available, covering myriad topics from nutrition and fitness to gardening and woodworking.

Generally shareware is easy to find. The hard part is wading through all that's available to find something that meets your particular needs. Many shareware sites are available, including the popular Download.com (<http://www.download.com>) and Shareware.com (<http://www.shareware.com>). At Shareware.com you can search three different ways, each time becoming more specific and using a product description, effectively narrowing the hunt. There's a good chance you'll find something you like in shareware—the best part about it is you can try it before you buy it.

The Shareware.com Quick search lets you search for one word, such as "railroad." The results in our test featured games, hobbyist software, screen savers, and more. To further narrow the search, go to Simple Search. Select which platform (for example, Windows 3.1 or Windows 95) you use and how many records you want displayed. Choose to search using one word or two. If you use two words, you can decide to search for entries that include either word or both, such as "railroad and model" or "railroad or model."

Power Search lets you exclude words from the query. For instance, entering "railroad and model" then "but not screensaver," excludes any model railroad screen savers and concentrates the search exclusively on application software. Doing this, we came up with several choices, including the model railroad simulation *CaTrain v1.21* and *XtrkCad*, a model railroad layout computer-aided design (CAD) program.

Special Order

A handful of the specialty programs we turned up provide perfect examples of the unique products available to persistent searchers.

The Advantage for Racing Pigeons

\$249.95
Advantage Software
(503) 649-8338



A customizable database designed to help pigeon owners maintain important information and statistics on their birds, including breeder, gender, performance, and pedigree data.

Gradespeed

\$59.50 for individual teacher
Campusware
(800) 722-1619

An electronic gradebook system for teachers at all levels that can track academic records in up to eight classes of 60 students each.

CaTrain

Free download
Joel Bouchat
<http://www.download.com>



Lets model railroading enthusiasts design and simulate railways, as well as operate a real model railway with a dedicated controller.

Assistant Basketball Coach '98

\$79.95
Extreme Software
(602) 996-9773



Tracks statistics and schedules, allows the creation of team and player profiles, and can generate more than 68 different reports. It's also a digital playbook, so the coach can print copies of the newest play for the whole team.

WinOrbit

Free
Carl Gregory K8CG
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- **INTERNET BASICS** — This book walks you step-by-step through your first online connection and gives you detailed tutorials on many Internet activities. Also includes hardware and software tips. (116 pages)
- **GOING ONLINE** — Everything you need to know about online services and Internet connections. (168 pages)
- **AMERICA ONLINE** — A comprehensive guide to the information and services offered by the world's most popular commercial online service. (176 pages)
- **WEB** — Reviews of 2,500 sites and tips for speeding up Internet access. (192 pages)
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- **NETSCAPE** — How to tweak and troubleshoot Navigator in order to conquer the 'Net. (160 pages)
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- **COMPUTING FOR PARENTS/STUDENTS** — Help your junior high and high school students excel in school! Improve their ACT/SAT scores. Get hard-to-find college scholarship money. Plus much more (covers grades 9-12). (192 pages)
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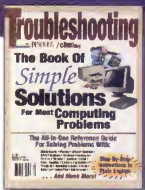
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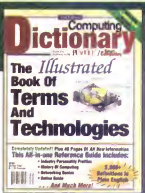
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Online shopping provides a resource as well. At the Visa Shopping Guide by Yahoo! (<http://shopguide.yahoo.com/shopguide/compsw.html>) users can search through thousands of titles, read reviews, and generally get more information before the credit card comes out. The Visa Shopping Guide provides links to several major online software retailers.

These major software outlets are no more likely to have the really unusual packages than the local retail store (see sidebar), but they do have greater variety than most stores have room for shelf space. If you're looking for something that isn't too specialized, you may find it at an online shopping mall.

A potentially better source of online information may very well go back to the word-of-mouth mentioned above, but with a twist. Newsgroups—where interested folks post

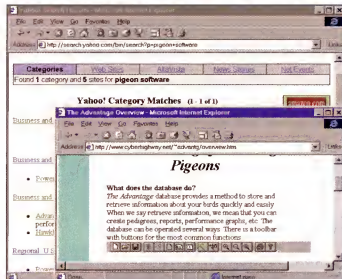
their two cents' worth on the Internet's global bulletin boards—are a good place to go if your basic Web search isn't turning up much. Find a newsgroup with a subject that matches your interest and look through recent posts. If

nothing turns up among the latest conversations, head to DejaNews (<http://www.dejanews.com>) to search through its archives of old newsgroup fodder. If you don't see anything that pertains to what you're looking for, post a message yourself, asking for advice on what other aficionados use. You're almost guaranteed a response of some kind.

Since you've narrowed your search through the 'Net, specialized publications, or helpful people, be sure to check out the system requirements before handing over your credit card number or cash. You don't want to find that the fruits of your labor won't work on your system after you pay for it.

When it comes to finding specialty software, the bottom line is don't give up—what you want is probably out there. ■

by Anne Steyer Phelps



Take advantage of the World Wide Web's many search engines such as Yahoo! to locate information on software tailored to your niche interest.

Mainstream Shopping

When you're struggling to find software that meets your specific needs, your first turn may be into the parking lot of a retail software store. It's definitely worth a shot, but retail shops typically cater to the average consumer, carrying in quantity popular software products, but little in the way of specifics.

This isn't necessarily true in every store, however. Some retail establishments may have partnerships with wholesale software companies and other manufacturers, making special orders possible. Often times how helpful you find the store will depend on how knowledgeable the staff is and how willing they are to join in your quest. For the best service, try asking for an employee who works the software section; these employees usually know their products and are more interested in talking about it than counter personnel.

We stopped by a local Staples store and inquired about some specialty products we'd discovered such as *Advantage for Racing Pigeons* and *Campusware Gradespeed*. The friendly Staples employee apologized and said the store carried nothing but mainstream software aimed at the general public. He explained he couldn't order such titles either because like most national chains, Staples only carries the titles on hand. This particular employee

was at least helpful and proceeded to suggest ways to find specialty products.

After getting nearly nowhere at a local retail store, we tried the mail-order division of one of the largest software clearinghouses: Egghead Computers (800/344-4323). Again we encountered an exceptionally helpful employee but with zero payoff. He tried every keyword search he could think of and still came up empty-handed. Not to be discouraged, he put the call on hold and asked another staff member for assistance, but to no avail. At Egghead, as at Staples, the employee offered suggestions for locating the aforementioned products.

Despite the dedicated employees' best efforts, most retail stores just can't satisfy the needs of consumers in search of specialty software. This is true of most operations, although all employees probably aren't as amiable as those we encountered. Many clerks will give a curt response resembling, "If it's not on the shelf we don't carry it," leaving you disgruntled and searching on your own. The hard truth is that most retail establishments cater to John Q. Public and his typically mainstream needs. The good news is the World Wide Web gives you many more options and places to shop. □

Take Charge With Do-It-Yourself Software



With a computer, some software, and a little bit of motivation, you can complete many of your dirty little deeds and projects without going to a professional. If your program is good enough to handle the task and you use it correctly, it can save you time and money.

We wanted to see what we could do for ourselves with some popular do-it-yourself programs, so we grabbed a bunch of software (and jumped on the Internet in one case), and went to work. Then we took our results to some professionals to see how they stacked up, keeping in mind, of course, that the pros we consulted make their livings from customers that come to them rather than doing it themselves.

First, we filled out a 1040 tax return with Quicken's popular *TurboTax*. Then we created some common legal documents with *Quicken Family Lawyer 8.0*, by Parsons Technology. Next, we created a business brochure with

Microsoft Publisher 97. And finally, we made travel reservations online, using *Microsoft Expedia* (<http://expedia.msn.com/daily/home/default/hts>).

■ **Hey, You're A CPA.** Tax season is over, but giving Uncle Sam his take is one of the most common (and important) do-it-yourself computer projects. After all, you don't want the Internal Revenue Service (IRS) knockin' on your door.

We installed *TurboTax*. This user-friendly program is basically all you need to complete your taxes. You just plug in the numbers from your W-2 and 1099 forms (and any other relevant financial information). You also can use the *TurboTax* interview process to make the process even easier. The program will ask you questions as you work through the tax forms, which helps ensure that you are filling out the forms correctly. The

interview takes a long time—about an hour in our case—but it's thorough and will reduce your chance of error. Besides, how long would it take you to fill out the form *without* the interview?

TurboTax takes some of the guess work out of preparing taxes. Plenty of resources, such as video clips, are included in the program, which helped us understand every step we needed to take. If we had a question about our taxes, we could find the answer easily in the program. For example, we weren't entirely clear on what a Form 1099-Misc was, so we looked it up in the Tax Help guide, which explained the form's purpose. Periodically *TurboTax* checked our form for errors, but found none. We also had the program check whether we had overlooked any possible deductions.

TurboTax gives you the convenient option of sending your return to the IRS electronically, an option growing popular because people don't have to worry about whether the IRS receives their tax returns. There's no chance of these digital returns getting lost in the mail. Filing electronically also comes in handy when you're putting the final touches on your return at 11:48 p.m. on April 15.

We were confident that we filled out our 1040 form correctly, but we wanted an expert's opinion. We printed out our completed tax form (no need to pick up a form at the post office), and took it to a local Certified Public Accountant (CPA). We consulted Allen Anderson of Lincoln, Neb., who has seen *TurboTax* generated returns before. He carefully examined our tax return, punched in a few numbers on his keypad, and determined that the form was correct. "I think they do a good job on the format," Anderson says. He also likes the *TurboTax* interview process. "That interview process...is very important," he says, in helping users make sure everything is correct on their tax forms.

Another feature Anderson likes is the ability to file electronically. "I think it's the wave of the future," he says. The biggest benefit for taxpayers is that there is a reduction in their chance of making errors when they file electronically. When the IRS receives an electronic return, most of the normal math errors and missing information are eliminated.

Anderson points out one disadvantage to tax preparation software, however. He says tax software doesn't think. A professional tax preparer can act as a financial planning quarterback and

assist you in making your long-term financial plans. "The software hasn't really gotten to that level," Anderson says.

Still, we feel TurboTax is an excellent example of a do-it-yourself program that gets the job done right. Tax returns are one area where you don't want to make any mistakes. TurboTax helps you make sure you don't.

■ **Legal Eagle.** We tackled the creation of legal documents next. This is another project with little room for error. We used Quicken Family Lawyer 8.0 by Parsons Technology to create three common legal documents: a will, a power of attorney, and a confidentiality agreement.

We created all three documents in less than an hour with this easy-to-use program. Basically, it was just a matter of plugging names and dates into preformatted documents. We went through an interview process—similar to the one in TurboTax—where we answered various questions. You can't finish the interview without completing all the steps, so there's no chance of leaving something out accidentally.

When you move to the document creation, you can choose from a few options. For example, when we created the Confidentiality Agreement, we chose to protect trade secrets, copyrights, intellectual property, and business records and plans. There was also an option to protect several other properties, such as inventions and client lists. But, since we haven't invented anything lately (at least nothing we will admit to), we decided to leave that out. One nice touch in this program is the link setup that takes you to definitions of most of the legal terms appearing in documents. Whenever we came across a legal term we didn't understand, we clicked the word and read up on a little basic legalese.

We were a little skeptical that a preformatted legal document would stand up to the intricacies of the law. So, we contacted Attorney Bill Chapin to obtain his opinion on legal software. Chapin examined the Power of Attorney document first and declared it fairly comprehensive. The only omission, according to Chapin, was the word "purchase" in the list of powers granted to the Agent. Chapin says this wasn't a huge omission, but it should probably have been included. The only other thing Chapin suggested was that if we wanted to bequeath specific items to specific individuals, we would need to create a list and attach it to the Will.

The Confidentiality Agreement also looked good. Chapin's only suggestion was that one



Microsoft Publisher 97 can create great documents, if you take the time to learn how to use it.

needed to make sure everything one wants protected appears on the list. For example, we didn't include a Client List in our Confidentiality Agreement, which is commonly found in such documents. The software does give you the option to include Client Lists in the agreement, but we simply didn't include it when we created the document.

Chapin thought the documents we created were fine for the most part. But he cautions that, if the documents you create are technical, you should run them by an attorney. "If the document is drafted and you put something in there that isn't quite right, it's usually held against the drafter." Cover your bases by consulting an attorney for more complex legal matters. You don't want to be held liable if errors are in the legal documents you create.

■ **Be A Travel Agent.** Travel agents might be the next service professional you can trim from your schedule. It's easy to make travel reservations online, but we wanted to make sure we could obtain as good (or better) deal than we could through a travel agent.

We visited Microsoft Expedia.com, which is The Microsoft Network's online travel area. We booked a three-day business trip to San Francisco. We clicked the Travel Agent link at Expedia.com's front page and started making

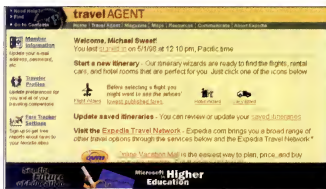
the necessary arrangements. We used the on-line wizards to book a flight, make hotel reservations, and find a rental car. The easy-to-use wizards gave us options for prices, airlines, hotels, and car rental agencies.

Our first step was booking a flight. We filled out the necessary information in the Flight Wizard, such as where we were leaving from, where we were going, and when we wanted to leave. Then, a list of available flights appeared along with the price of tickets. We booked a flight on United Airlines from Lincoln, Neb., (Smart Computing headquarters) to San Francisco with a layover in Denver. The price of our round-trip coach ticket booked one month in advance totaled \$630.

We went through the same process in the Hotel and Car Rental Wizards, choosing to stay at The Courtyard by Marriott (\$159 a night) and to rent a car from Dollar (\$40.99 per day for a midsize automobile).

After making all the arrangements, we contacted Vicki Grieser, office manager of Travel & Transport, a local travel agency. She was able to book us a flight from Lincoln to San Francisco for the same price. She pointed out, however, that we could save some money by taking a different flight out of Omaha, 60 miles away from our offices. (That flight only cost \$580.) Grieser also recommended that we go through a

The interview process in TurboTax Deluxe makes figuring our your taxes easy.



With Expedia's Travel Agent, you can buy plane tickets, make hotel reservations, and even rent a car over the Internet.

different rental car agency. She recommended Payless, which cost only \$25.88 per day for the same type of car. She also obtained a room at The Courtyard by Marriott for the same price.

We thought that making reservations online was simple enough, and it gives you enough options that you don't need to go through a travel agent. Of course, some agencies may have vacation packages that save you a little more money than the deals you can find online. You should shop around to find the best deal, of course, but we ran into no problems when organizing a trip on the Internet.

■ **Start A Publishing House.** Our final project was also the hardest and most time-consuming. We decided to create a three-panel brochure promoting our magazine.

We used Microsoft Publisher 97 to design the brochure. The program includes a PageWizard Design Assistant, which can create several types of documents, including the brochure. The PageWizard asked us a few questions about what type of brochure we wanted to create, such as whether we wanted a picture on the front and whether we wanted it to consist mostly of text or pictures.

The PageWizard created the document template once we finished answering the

questions. All we had to do was plug in the text and art. The program, however, guides you in this process, too. It gives you a few tips when filling out the brochure. For example, a few places in the brochure tell you where to place a main heading, a subtitle, and additional information. This is a helpful touch.

We wanted to make sure we could grab people's attention with the brochure, so we made it colorful and added a little clip art (included in the program) and a couple of photos. After we arranged everything, we ran Publisher 97's Design Checker. It pointed out a couple of things we missed and made some style suggestions. For example, the Design Checker told us we were using more than three fonts and colors in the brochure, which made it look busy. So, we made a couple of adjustments and printed out a copy to take to the printer. We thought it looked good, but we wanted to know what a professional designer would say.

Charlotte Boe of Eagle QuickPrint and Graphics reviewed our brochure. She noticed a couple of problems that our Design Checker missed. Specifically, that one of our columns was not right-justified, whereas the other columns were. She also pointed out that we left the tab stop at five spaces, which was too much

considering the narrowness of our columns. She says this is a common oversight. "Just because the machine sets the tabs at five spaces, [people] use that, instead of making it smaller," she says.

That's not to say you can't create great-looking documents with Microsoft Publisher. Boe says you can if you take the time to learn how to use the software.

Another thing Boe pointed out was that we went a little overboard with the art. "You can make something as artsy and crafts as you want, but if it's hard to read, they're not going to read it," she says. Boe also suggests focusing more attention on what you are saying, and not how the page looks.

Boe says one of the most common problems people run into when they're creating brochures is that they use unusual fonts, which the printer shop may not have. Boe recommends sticking with basic fonts.

We found that using a computer for do-it-yourself projects generally turns out well. The programs may not be the perfect answer for every situation, but they're a step in the right direction. Using do-it-yourself programs will save you some time and money, even if you consult a professional once it is finished. Plus you can take pride in the fact that you were able to do it yourself. ■

by Michael Sweet

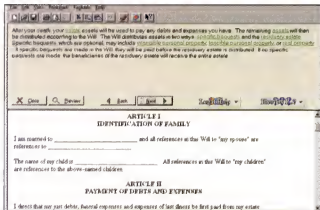
For More Information:

TurboTax Deluxe
\$49.95
Intuit Inc.
(800) 224-0991
(415) 944-6000
<http://www.intuit.com/turbotax>

Microsoft Publisher 97
\$79.95
Microsoft Corp.
(800) 426-9400
(206) 882-8080
<http://www.microsoft.com/publisher>

Quicken Family Lawyer 8.0
\$29.95
Parsons Technology
(800) 779-6000
(319) 395-0115
<http://www.parsonstech.com/legaloffice/index.html>

You can create legal documents in minutes with Quicken Family Lawyer 8.0.



Get Graphic

Learn The Basic Terms & Tools Of PC Art

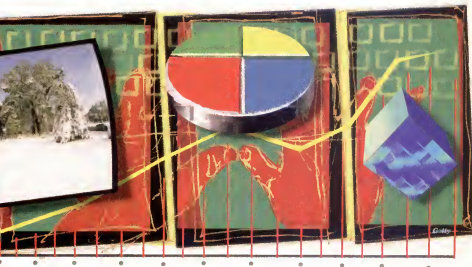
As children, our world consists of colors and shapes. We put our ideas to work, wielding nothing more than a 64-pack of crayons and possibly a ruler. Eventually we learn to use the "proper" colors, to press lightly, and to stay inside the lines. All these rules soon give us the impression that the artists' world consists of an elite crew, ourselves excluded.

For this reason, when most people think of computer graphics, they usually limit their scope to graphics artists and designers trained in working with digitized images on a computer. But few realize how many people use some sort of graphics application every day. Possibly even fewer people know that anyone can learn to use a computer graphics program—and learn to use it well. All it takes is basic knowledge of the fundamental terms and tools that apply to most graphics software.

A **graphic** is the digital version of an image, photograph, drawing, or painting placed on a computer monitor. These images can be created directly on the computer or input into the computer with a **scanner** (a device that converts images on paper into a digital format). A **graphics program** incorporates images and lets users draw, edit, tweak, and alter them with the aid of several processes, such as drawing, painting, cutting, scaling, and stylizing.

■ **Choose Your Weapon.** Graphics programs span a wide range of artistic, educational, and business applications. Each program category contains further sub-levels of graphics programs.

Graphics programs work with images differently. **Drawing** programs incorporate lines



and points to create object-oriented graphics, which are based on mathematical equations that let the computer process lines, arcs, and other geometric shapes. **Paint** programs work with **bit-mapped**, or **raster**, images, and let users incorporate tools such as lines, paint cans, fillers, and erasers. The key difference between drawing and paint programs is the way they create files. Drawing programs work with **vectors** (lines on a grid, defined by their endpoints); paint programs work with **bit-mapped** images made up of series of dots, called **pixels**. Both vector-based and bit-mapped programs have advantages, depending upon the desired effect.

Bit-mapped formats work best with images that have broad variations in colors, hues, or shapes, such as photographs and detailed paintings. Vector formats lead the pack for line art, such as **computer-aided design** (CAD) programs, charts, graphs, and simple images. Bit maps—especially detailed ones—require a glut of storage space. Also, enlarging bit maps makes the pixels more prevalent; eventually the image looks like a bunch of colored squares, rather than an actual image. Vector formats don't allow the fine representation of color and detail of a bit map. But vector formats can be stored in less space and enlarged with better results because their code can be broken into points and lines, rather than the thousands of tiny points that make up a bit-mapped image.

Leading drawing programs include *CorelDRAW* by Corel Corp. and Adobe Systems Inc.'s *Adobe Illustrator*. As for paint programs, check out *Paint Shop Pro* by JASC Software Inc. or *MetaCreations Painter 5.0* from MetaCreations Corp.

Of late, more graphics programs contain **metatile** (or multiple file) options, which include both raster and vector formats. Two examples of metatiles are the Windows Metatile (WMF) and Computer Graphics Metatile (CGM).

Image management (sometimes called **morphing**) programs resemble drawing and paint programs, but they only let you amend or manipulate images, rather than create images from scratch. Popular imaging programs include *Picture Publisher 7.0* by Micrografix Inc. and *Macromedia Freehand Graphics Studio 7.0* by Macromedia Inc.

Three-dimensional (3-D) programs create images that appear to have depth as well as width and length. For example, you could draw cubes rather than squares. You could create a cool logo, or perhaps a screen saver that nearly hits your co-workers in the face. Consider *Bryce 3-D* from MetaCreations or *Fractal Design Corp.'s Fractal Design Expression*.

Photograph editing programs speak for themselves. You "develop" photos with color, shading, cropping, and sizing tools. You even can crop out that Vega parked in the

foreground of the great exterior shot of your company. Check out *PictureIt! 2.0* from Microsoft Corp. or *Adobe Photoshop 4.0*.

Desktop publishing programs provide tools for creating published documents. Create business logos, letterhead, newsletters, cards, or even a magazine. Serious users invest in something like *QuarkXPress* by Quark Inc. or *Adobe PageMaker 6.5*.

Presentation graphics programs also support professional design, but it's more along the lines of processing figures and examples as diagrams, charts, and graphs for business purposes. Public relations, marketing, and advertising executives top the list of presentation graphics users, but anyone that has to share information with a group could benefit from one. Leading presentation graphics programs include *Micrografx's Graphics Suite 2* and *Microsoft's PowerPoint*.

Every category and specific brand of graphics program garnishes your projects in different ways. But you'll find that the core tools are universal. When you master these basics, you can quickly come up to speed on many types of graphics software.

■ Tooling Around. When you get down to using graphics programs, you'll find their different tasks are available in the same basic interface. You can learn the basic tools of working with graphics by following along below as we create a logo. We'll go step-by-step, discussing the tools used in creating this logo with *Fractal Design Expression*. Remember that you won't find exactly the same tools and capabilities in every graphics program, but you will find the interfaces are relatively consistent. Many of the principles described in our *Fractal Design* tutorial apply to a graphics program as simple as the *Paint* accessory built in to *Windows 95*.

Let's start with an overview of the tools.

Key components on your screen usually include the following:

- Drawing window, the blank area where you'll work on the image.
- Color palette, appearing either as a color wheel or series of color windows. Tools here help you choose strokes to make certain lines or textures, and you can choose fills to color the inner portion of an object. You also can mix colors, change the **opacity** (vividness) of a color, and enable a **color gradient** (light-colored background with a dark-colored foreground that creates a 3-D

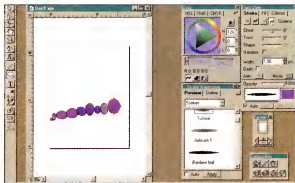
effect). This is also the place to choose a pattern, from polka dots to stripes to zigzags to checkerboard, depending on the level of the program (the more expensive, the more options). For more color options, you may choose from a gallery of **spot colors** (individual colors layered to create a certain color). Styling tools help you create shadows, layers, and textures.

- Standard toolbar, which includes buttons for core options found in almost every program, such as New, Open, Save, Print, Copy, Cut, and Paste.
- Tools toolbar, which holds tools for drawing, arranging, typing, transforming, and viewing. Drawing tools let you create lines, arcs, curves, squares, and ovals. Arranging tools help you move an object to the front, to the back, and forward and backward. Typing tools let you select font, point-size, character, and paragraph settings. Transforming tools include options such as moving, changing the scale, rotating, reflecting, and shearing parts from an object. Viewing tools let you zoom in and out on an object and provide grids, rulers, and tiling options so you can keep tabs on the proportion and location of your object. The measuring tools include status bars that log objects' dimensions.
- Status bar, which lets you control the size and proportion of your image. You can enable or disable grids and rulers according to preference.

■ Draw It. Now that you have your bearings, let's start working on the image. We're going to draw a caterpillar logo for a fictional pest control business.

1. To begin, open the File menu and select New Document. This will open your blank drawing window. First you want to draw the body of the caterpillar by selecting the **ellipse** tool from the toolbar.

To select a tool, click its icon. The tool's button should remain depressed to indicate which tool is in use.

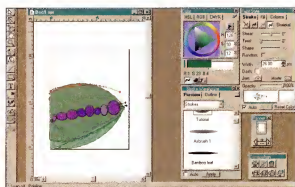


Click the ellipse tool and drag your mouse pointer to create various sizes and shapes of ovals and circles.

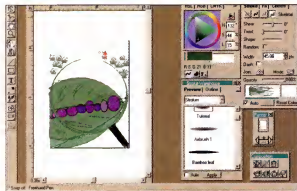
2. Go to the color palette and select the color you want to use for the line. (If you don't select any colors, your line will be drawn in black, the default color.) For instance, select the color purple; to lighten the color, simply click the lighter purple tones, or if you see adjustment handles, use your mouse to drag the handles to the right until the color lightens. Also notice that on-screen number values change as you lighten the color; the number values signify the amount of certain color mixes into the actual color. For example, the number value could be greater for the color yellow than the color blue if you're using a lime-green color in your image.

You also may want to fill your ellipse with color. Select the fill tool from your paint palette and select a color. In *Fractal Design*, the fill tool looks like a shaded box. In many graphics programs, it looks like a paint can or ink jar spilling its contents. You either can draw a circle that already has the color fill or add the fill after you create the circle.

3. To draw a circle, click the spot where your shape will begin, then drag your mouse



Create a leaf with the freehand tool, which lets you create non-standard shapes by drawing curved lines.



A good brush tool lets you make strokes with frayed edges to resemble blades or patches of grass.

to create the shape. To fill an existing circle, click the circle to select it, then click a new color.

4. Now draw a series of circles to form the rest of the caterpillar's body. The circles can be as big or small as you choose, but you may want to make a large circle for the head. You also choose what colors you want the body to contain and can make each circle a different color.

5. Perhaps you don't like the size of your circle; you can press CTRL-Z to undo your actions. In many programs, pressing this key combination repeatedly will undo a series of actions. If the undo option doesn't go as far back as you'd like, just click the items you don't want, open the Edit menu, and choose Cut.

Another option is to use the **eraser tool**, sometimes called the shear tool, with which you can erase portions of an image by dragging your mouse along the area you want erased.

6. When you finish the head and body, add antennae. For precise work, you may want to see the caterpillar's head up close. Click the **zoom tool**, which looks like a magnifying glass. Click your document to enlarge the picture. The more times you click the document, the more you magnify the image. To zoom out, hold the ALT key while you click the document with the zoom tool.

7. Now let's start on the antennae. First select the **freehand tool**, which looks like a brush or pen. Select a color, such as violet.

You may want to use a slimmer stroke for this, too, without a fill. Go to the style palette

and change the width by typing in a new point size or by clicking the arrows next to the value.

8. Go back to the caterpillar's head and click and drag until you've drawn the size of antenna you want. You can add little circles to the tips as well. Just click the ellipse tool and draw the circles as you did with the body.

9. Next, draw a leaf for the caterpillar. First choose the color green you want. If you have the option to select different types of strokes, choose a brush stroke with a fill. This will create softer edges.

Select the freehand tool. Draw the leaf in the shape you want. If you selected the fill option, the leaf will automatically turn the shade you want.

10. Now it's time to draw the magnifying glass that will cover our caterpillar logo. For this, select the circle tool and choose a light color, perhaps an opaque blue. In your drawing window, drag the circle onto your document until it surrounds the caterpillar image.

To draw the handle, select the **line tool**, which, suitably enough, looks like a line. Increase the width of the line, and draw it where you want the handle by clicking and dragging with the mouse.

11. You can adjust the size of the caterpillar so it appears to be magnified by clicking each circle. A few **handles** will appear. The handles look like small arrows, or simple points. You can click and drag these handles with your mouse to move or resize your image.

To resize the entire image, you can **group** the objects by pressing CTRL-G; notice the handles appear around your entire image. (Ungroup objects by pressing CTRL-U.) Just click these handles and drag with your mouse to enlarge the entire image.

12. If you don't like the position of your graphic, you can move it with the **grabber tool**,

which looks like a hand. Just click the hand in your toolbar, then click and drag your document until it's where you want it.

13. Now add grass to your illustration. If you have a **brush tool**, select that along with a shade of green. The brush strokes will have frayed edges, lending the appearance of blades of grass. Click and drag your mouse in upward strokes to create patches of grass.

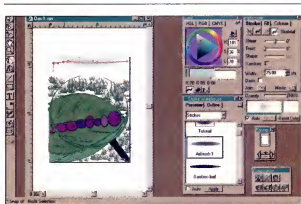
14. For the sky, select another light blue color, then select the **airbrush tool**, which frequently looks like a spray-paint can. Here, you may want to increase the width of your stroke. Drag your mouse across the sky, and notice how it makes a cloudy effect. To create the effect of light and shadow, select a different shade of blue and draw over the top of the original shade.

15. To place text in your illustration, select the **text tool**, which is usually a T or an A. Click somewhere on your document to produce a cursor. Type whatever you'd like.

You can embellish your illustration however you wish. Add color, change location and size of elements, or add new elements. Tinker with the tools and develop new ways to use them.

The most important tool you will use is practice. Your success depends on your willingness to try techniques and experiment with the computer's tools. Exploration is the best way to learn how to use your software. So with work, you'll soon discover little tricks and shortcuts around the application; then you'll start drawing outside the lines in truly creative ways. ■

by Kay Prauner



The spray-paint, or airbrush, tool canvasses your area with color, producing a softer, more airy, effect.

Leave It On Or Shut It Off?

When To Flip The PC's Power Switch



Leave the legal wrangling over Microsoft's domination to the Justice Department. Save the debates over optimal cache settings for another time. Some of us ponder simpler questions such as whether to turn off PCs and monitors after each use or leave them running. This simple question has no simple answer. What prolongs the life of monitors may shorten the life of PCs and vice versa. There are, however, some guidelines to cull from the volumes of opinions and suggested practices.

The PC power question boils down to wearing out components by leaving the system on versus jolting the system with electricity through frequent on and off cycles.

The biggest stress on any electrical system is turning it on. Bruce Drenning, network engineer for DPSC Technology Consultants, says turning on any electrical appliance produces

an initial electrical spike that is generally three times higher than the amount of electricity needed to power the appliance. You've witnessed this phenomenon if the lights in your home ever dimmed when you turned on a hair dryer. Light bulbs tend to blow with that initial spike of electricity produced when you turn them on. The more frequently you flip the switch on and off, the shorter the bulb's life. Leaving it on all the time protects the bulb from that spike, but it will still eventually burn out. The same is true of your PC, which tends to be particularly sensitive to that initial electrical spike.

Thermal stress is another startup problem for your PC and another good reason to leave it on. When the PC comes on, the components heat up and expand. When turned off, they cool down and contract. This cycle of thermal stress is more detrimental to the life span of your PC and is more of an immediate

threat than the individual components wearing out.

Another school of thought says that the parts wear out anyway, so there is no reason to waste electricity by leaving your PC on all the time. Steven Koch, technical services engineer with Sony, advises keeping damage from the initial power surge in perspective. Jostling your computer in a move, smoking around it, and dropping it are all far more damaging than turning it off and on, he says.

■ **Monitoring Power.** While there's no general consensus on PCs, manufacturers and technical support people say if you plan to leave your monitor for more than two hours, you should turn it off or put it in **sleep mode**. This special setting leaves the monitor on in a low-power mode. Newer operating systems let you program how long your monitor can be left unattended before "going to sleep."

A monitor running at full power consumes nearly as much power as a PC, which can significantly increase your electric bill. Figures vary considerably, but monitors in use can consume 80 to 150 watts. Most monitors we checked drew 8 to 15 watts in sleep mode. Turning off the monitor doesn't necessarily stop the drawing of power altogether. Any appliance with a memory setting and no battery backup will continue to draw 3 to 8 watts even when turned off. Monitors that let you set the screen width, for example, will preserve that setting when they're off, but to do it they need power. Without this feature, you have to reset the monitor each time you turn it on. Koch says the amount of power monitors draw is such a concern in the industry that Sony is working on a monitor with a zero-watt switch. The monitor draws close to zero watts and is as close to unplugging it as you can get without actually pulling the plug.

Power-saving features similar to these are a key feature in green PCs. The housing and internal components of these PCs are built with recyclable materials. Features such as low-energy sleep modes let green PCs run constantly with a negligible effect on electric bills.

Smart monitors, which meet the guidelines set by the Video/Electronic Standards Association (VESA), have four stages in which the monitor gradually uses less power. These monitors can be programmed through operating systems that comply with Display Power Management Signaling (DPMS) standards. The

Even if you regularly put your computer to sleep or leave it on, restart the operating system regularly.



first DPMS stage is on and functioning—either the monitor is in use or the screen saver is engaged. In this stage, the monitor draws peak power. In the standby stage, the monitor draws 50% less power and offers a fast reaction to input; it responds almost immediately to mouse movement. In the suspend (or sleep) stage, the picture tube is actually off, and the monitor draws 10 to 15 watts. To get out of suspend, you must press the PC's wake-up or sleep button. Because the picture tube was off, the monitor will slowly grow brighter just as it does when you first power up for the day. The final stage is off, but the monitor has not been physically switched off by the user. The circuitry is still active, and the monitor is drawing 3 to 7 watts. Newer Windows-based operating systems offer the configurations that determine how much time elapses before the monitor gradually powers down.

If your monitor lacks the power-down features outlined above, the easiest way to prolong its life is to turn it off each day. Monitors are subject to thermal stress, but the life span of a monitor is inversely related to the amount

of time it is on. The longer it's on, the shorter its life span. Young Bae, product manager for CTX International, says monitors are far less sensitive to the power spike than PCs, and the secret to monitor longevity is turning it off daily.

You should also turn your monitor off or put it in sleep mode because phosphor, the chemical lining in the tube in your monitor, has a limited life. When the screen is on, the phosphor glows to produce the on-screen image. Years ago a static image on the screen would burn itself permanently into the phosphor, producing persistent "ghost" images. Monitor makers warned us to keep the images moving on the screen or shut off the monitor. Although burn-in technically is still possible, Koch laughingly says that the image would have to be on your screen for about 12 years before burning in! Monitors have a finite amount of phosphor, however, and as the monitor ages, the phosphor grows dimmer and dimmer. You will enhance the life of the phosphor significantly by putting the monitor in sleep mode, using a darkened screen saver, or turning the monitor off when it is not in use.

■ **Which Comes First?** If you turn off your PC, monitor, and other hardware such as printers and scanners every day, several monitor manufacturers suggest turning on the monitor first when you restart everything. Bae explains that the PC's operating system will query the monitor about its identity, and it's possible that the operating system won't interface properly with the monitor if it can't find it during the initial search. That is a rare problem, but you can avoid the possibility by turning on your monitor first. Koch says one Sony system specifically requires that the computer be turned on first, but with most systems, you may turn on the monitor first.

Many users want to power up and power down their PCs and related hardware with a single switch. Manufacturers and technicians we interviewed agreed that shutting off the entire configuration at the power strip isn't a problem—as long as you follow the shutdown procedure for your operating system.

■ **Operating System.** That software step is a critical one for any system shutdown. Failing to shut down the operating system can damage files and produce a long delay when you turn on your PC again. The wait will be similar to the delay experienced when you restart the PC after an abrupt loss of power,

which is essentially what your operating system suffers when shut down improperly. To do things right, click the Start button in Windows 95 and choose Shut Down. In Windows 3.1, choose Exit Windows from Program Manager's File menu.

Even if you regularly put your computer to sleep or leave it on, Drenning advises shutting down and restarting the operating system regularly. The longer you go without rebooting (restarting), the more likely a crash becomes. Your PC regularly creates temporary files while running. These files are normally discarded when you shut down the operating system, but if you never reboot, the temporary files get huge, and the entire system will run sluggishly. Drenning advises performing a warm reboot once a day, and, at minimum, once every three days to clear the cache (memory that stores frequently used data) and regular memory. A warm reboot occurs when you push the Reset button on the PC's case or restart the operating system without shutting off the PC. A cold reboot involves physically turning off the PC.

Another kind of software shutdown is important for PCs connected to a network. Network users probably log out at the end of each day, if not turn off the system entirely. Dr. Mark Misic, director of information systems & communication services for the College of Business at Northern Illinois University, says server software (which runs a network) cannot be upgraded when individual users are online and using it. Just think of the problems that could arise if you tried upgrading software on your PC while using the application.

Individuals who leave applications open during a network hardware change cause problems for the server itself. Before a network hardware change, a complete backup of everything on the server is necessary. If individual users have files open at the time of the backup, it's possible that the server won't read or back up the open file, or the server may simply hang up at that point.

The choices for network users are obviously more restrictive than those for users of single PCs. On your desk, the only real shutdown requirement is to regularly restart the operating system to avoid crashes and sluggish performance. You have the power to make your own policy on the other power questions. ■

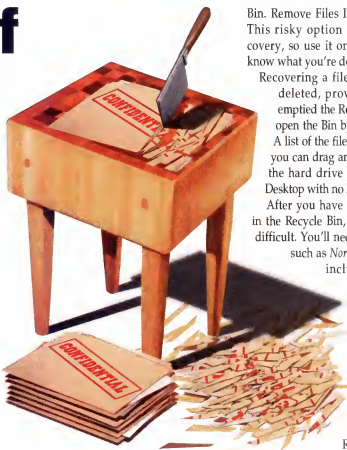
by Katie Powers

Details Of Deleting Files

Disposing of files you no longer need sounds like a simple task, but it there's usually more to it than simply pressing the DELETE key. Few users know that someone with the correct tools can easily recover deleted files from your hard drive. That is both an advantage and a liability. When you need to keep files away from co-workers in the office, or even the home, it takes extra steps to ensure those deleted files are really gone. The right skills and software let you securely dispose of files, E-mail messages, and other items you no longer need and recover files you deleted a little too hastily.

When you delete an item, it's not physically erased immediately. It's removed not from the hard drive, but from the File Allocation Table (FAT). This table houses the information relating to all the files stored on the hard drive. Think of it as an index—not part of the file itself, but a valuable guide as to where to find it and what it is. When you delete a file, all the data in it remains, even after you take steps like emptying Windows 95's (Win95's) Recycle Bin. Windows does this by replacing the first letter of the original filename and then hiding the file from the system. Although the file is no longer on your Desktop, the information stays on your hard drive until something else on the drive overwrites it subsequently.

New hard drives store files in their saved order. The placement of the most recently saved file is at the end of the used part of the drive. Once you start deleting files, however, gaps appear in the available storage space. If those gaps are large enough, they're used as needed. Until the PC writes new data over old on the hard drive, it's usually possible to recover a lost document from the hard drive. This is a lifesaver if you delete something accidentally or an enormous problem if you're trying to delete confidential information permanently.



■ **Get It Back.** Most of us know Win95 isn't perfect, but it has some smart features that are big enhancements over Windows 3.x. The Recycle Bin is one of them. Deleted files go to this file purgatory for temporary storage until you empty the Bin. It's easy to look inside and retrieve anything you need right up to the point of emptying the Bin. Once that happens, it's still possible to retrieve files, but it's hard without third-party software.

Right-click the Recycle Bin icon and select Properties from the options to customize the way Windows handles deleted files. This is where you'll determine the amount of space used for temporary storage of deleted files. We recommend leaving these settings as they are. When you reach the limit, a dialog box will appear offering you the option to clear the waste before continuing.

Keeping a large Recycle Bin makes it easy to restore lost data up to this point. If space on your hard drive is at a premium, you can change the settings so the removal of anything you decide to delete is immediate. From the Properties menu, check the box marked "Do Not Move Files To The Recycle

Bin. Remove Files Immediately On Delete." This risky option precludes easy file recovery, so use it only if you're certain you know what you're doing.

Recovering a file you have accidentally deleted, provided you have not yet emptied the Recycle Bin, is easy. Simply open the Bin by double-clicking its icon. A list of the files inside will appear. Now you can drag and drop the file back onto the hard drive or even onto the Win95 Desktop with no loss.

After you have emptied all deleted files in the Recycle Bin, recovery is a little more difficult. You'll need a third-party program such as Norton Utilities. The package includes a program called

Norton Unerase, which will recover a recently deleted file. If you have written to the drive in the meantime, however, recovery will be more difficult. The small shield that appears on the standard Recycle Bin is the main

clue to the addition of Norton Protection. Right-clicking the Norton Protected Recycle Bin brings up the Unerase program. A list of recently deleted files will appear along with the probability of successful retrieval.

Windows 3.x lacks a middleperson like Recycle Bin. This older version of Windows deletes files immediately. When you delete a little too hastily, you can turn to the DOS Undelete tool to recover files, providing nothing has been written to the drive in the meantime. (See "Undo Delete Damage" in this issue for more information.)

■ **Is It Really Gone?** If you work in a sensitive environment, you may need to ensure that recovery of a file after deletion is impossible. The solution is to scramble selected data stored on your hard drive. This ensures that anyone who tries to recover the file will obtain only meaningless garbage.

Several programs scramble and encrypt data for deletion so it can never be recovered. *Shredder95* lets you select files and then remove them from a list. The shareware version lets you wipe 20 files before insisting that you register the software for \$29.95. You can drag

and drop files into the main Shredder window and get a final chance to review them before deletion. Of course, you can customize the program to run the way you want.

You can find Shredder and other scrambling tools at <http://www.winfiles.com/apps/nt/file-cleanup.html> or <http://www.download.com>.

■ **Program Deletion.** Whenever you install new software, even demonstration programs, files can be added in many different locations on your hard drive. Also, the system Registry, Win95's log that contains all the information of every program on your system, will be modified. Removing programs is a topic for another article, but we will point out that there are tools for removing every sliver of code software installs around your PC. Some packages are equipped with an uninstall option that should remove everything added, including the Registry entries. Some programs, especially older ones, lack this simple choice.

Win95's Add/Remove Programs feature in the Control Panel is a built-in way of removing programs, although it's sometimes unreliable. Often it leaves files or links behind that you must manually remove. Take care when deleting programs in this way or with third-party programs. Software sometimes use shared files; removing them may cause other programs to fail. Never remove shared files unless you are certain that nothing else uses them. Test their importance by moving these files to the Recycle Bin (but don't empty it). Reboot (restart) the system and run everything else before permanently removing them to be sure that they are not required. Remember, if in doubt, leave it alone.

A few third-party programs for removing complete programs include Norton Uninstall Deluxe, Imsi WinDelete, and Quarterdeck's CleanSweep and Remove-It.

■ **E-mail Deletion.** It's a well-documented fact that the Internet is not a secure place for confidential data. You can rest assured, however, that your Internet service provider (ISP) will do everything possible to make sure your mail can't be read by others. The default setting on your E-mail program will delete your messages from the mail server (the computer that handles E-mail for the

ISP) after you download them. You can change this setting if you want, but most ISPs would rather you didn't clog up their servers with old mail.

It is important to realize that the server you connect to is no more than another computer. Your E-mail is stored on a hard drive on the server just as it would be on your machine, but it's available for you to download when you connect. Therefore, under normal circumstances, it is not secure. In theory, it could be read by anyone with access to the server. An unscrupulous ISP employee or outsiders that break into the ISP could recover your mail. Protect sensitive messages by encrypting them with a product such as PGP that scrambles messages so that only designated recipients can read them. (PGP is available from Network Associates at 408/988-3832 or <http://www.nai.com>.)

It's hard to find precise rulings, but in court cases E-mail typically is treated like postal mail in that it is illegal for anyone other than the addressee to read it. In practice, it would be difficult to prove that others were reading your E-mail unless specific references were made or actions taken based on the information contained within your personal messages.

If you work in an office, your network almost certainly contains an E-mail system. Security for this office system generally will be higher than for an Internet mail system, but it's still not totally secure. Check with your system administrator (the person responsible for running your network) for information on how secure your mail is and what steps can ensure added safety. Deleted files (both E-mail and

data files) may be "purged" from the network by the administrator to maintain optimum performance. If you are deleting, try to save the file on your local hard drive and treat it the way you would any other file, or you may have much more difficulty in recovering it later if the need arises.

Your E-mail program (also known as a client) will store deleted messages in its version of the Recycle Bin. In Microsoft Outlook Express, this is a section called Deleted Files. Eudora uses a folder simply called Trash. As we already learned with Win95, nothing is removed until you empty the files from this folder. You usually can change the settings of your E-mail client to delete mail immediately or upon exiting the program. In Outlook Express, for example, this is found in the Options/Other menu.

Overall, the best advice for file deletion is to carefully consider whether you're really finished with a file before deleting it. It's an obvious rule, but there are a number of files accidentally or hastily deleted every day. If you remove any system files (those with extensions such as .INI, .DLL, and .VXD), keep them in the Recycle Bin for a few days to make sure your system still operates normally.

Finally, make regular backups of your files. Then if you do make a mistake, you can easily restore your last save and start again. ■

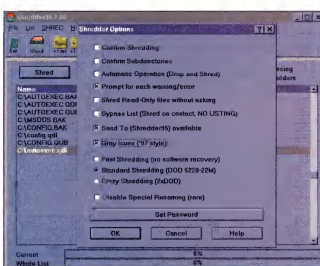
by Tony Kaye

For More Information:

CleanSweep, Remove-It
Quarterdeck
(800) 683-6696
(310) 309-3700
<http://www.quarterdeck.com>

Norton Uninstall, Utilities
Symantec
(800) 441-7234
(310) 453-4600
<http://www.norton.com>

WinDelete
IMSI Software
(800) 833-8082
(415) 257-3000
<http://www.imsiisoft.com>



A full range of options is available for customizing Shredder95.

Build A Web Site, Part 1

Hammer Out A Résumé In HTML



HTML codes is essential for serious Web page creation. We'll give you the best method of HTML authoring—beginning with plain HTML code and a template, and moving on to page creation with a graphical tool.

The Tools. To follow our tutorial, we recommend you have a computer using at least a 486 central processing unit (CPU) and running Windows 3.1 or Windows 95 (Win95). You'll also need a bare-bones word processor. We'll be using the WordPad word processing accessory that comes with Win95. (Another good choice is Notepad, the Windows 3.1 accessory.) The only other software you need

is *Netscape Composer*, a Web authoring tool that comes with *Netscape Communicator*. We're using Communicator 4.05, standard edition, which you can download free from the Netscape Web site at <http://www.netscape.com>. Many other graphical Web authoring tools are available, but the examples in this story will come from Composer.

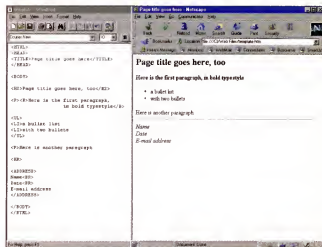
You don't need an Internet connection to compose and view HTML pages you create in this tutorial. Our HTML lessons take place offline on your computer Desktop. You can store the Web pages on your hard drive and view them in your Web browser. You will need Internet access, however, for the next two tutorials in our series.

You say you've played around enough on the World Wide Web? Now you want to make it work for you? That's smart thinking. This fast-growing, far-reaching medium lets you influence enormous audiences at minimal cost.

Our three-part tutorial series on Web design will help get the Web working for you. This series will help you establish an authoritative Web presence, whether it be a personal, business, or recreational site. Over the

next three months we will discuss how to build Web pages, how to upload them to an Internet service provider's (ISP) server computer, and how to attract visitors to your newly built site.

Our series begins with a hands-on lesson in the **Hypertext Markup Language (HTML)**, the programming language of the Web; our sample document is a résumé. You may have heard otherwise, but familiarity with basic



Our template in "raw" HTML code on the left and displayed by *Composer* on the right. Notice how the "invisible" text in the `<TITLE><TITLE>` tag appears at the top of the browser window.

■ **What Is HTML?** Let's get down to business. To create Web pages you should be familiar with the basics of HTML, the simple computer markup language used to create Web pages. HTML markup consists of codes or tags inserted into a plain-text document. These tags tell Web browser software how to present document structure such as its headings, paragraphs, and line breaks. HTML also tells the browser how to present items of document style such as bold or colored text.

When you "visit" a Web page, your computer is actually accessing HTML files from another computer connected to the Internet. The HTML files travel to your PC, where your browser reads them and displays the page according to the HTML instructions.

If a document contains no "markup" (HTML tags) a Web browser won't know how to create the display. The elements appear in a jumbled block of data. Your job as an HTML author is to insert the appropriate tags into your documents.

For example, when a browser comes across a line like this,

```
<H2>Camille Capulet, Résumé</H2>
```

it knows from the `<H2></H2>` tag that the enclosed text is a headline. The browser will display the words in a large font that is separated slightly from the following paragraph.

What HTML is not. Keep the following truth in mind: It is ultimately the individual Web browser that controls the look of an HTML page. If you have ever explored the preferences menus available for your browser,

you know it's easy to configure text in different sizes, fonts, and colors. These settings often override those created by a Web author.

This is one reason—no matter how fluent your HTML—that your Web page will look different on other computers. As long as individual Web browsers control document style, an `<H2></H2>` headline could appear in Arial or Times Roman font, in 14- or 36-point type, or in red or blue colored text.

Still other presentation issues involve the size and resolution of monitors. Resolution refers to the number of dots (called pixels) per square inch of viewing space on a computer screen. This affects how an image appears on-screen. For example, lower-resolution monitors (640 pixels x 480 pixels) display a larger image and longer line of text; higher resolution monitors (1,024 pixels x 768 pixels) display a smaller one. Furthermore, simply varying the width of a browser window alters the look of a Web page.

■ WordPad: The Hard-Core Choice.

Now that we've covered the disclaimers, let's start your Web page. The fastest way to get up and running is to create and analyze a basic template. It's always a good idea to use a template for creating Web pages. This helps you remember basic HTML tags and ensures a similar look and feel for all the pages that will be interconnected on your site—an effect to strive for.

The best way to begin is to find a simple text editor and type in the HTML codes by hand. Many people, including many Web designers, prefer to at least fall back on this method of creating Web pages even when they use a graphical tool to build most of the pages. This "hand coding" allows maximum control over layout, although you won't be able to see how the page is shaping up without jumping over to a Web browser.

First, create a new folder on your hard drive for your Web files.

1. In Win95, click Start, go to Programs, then Windows Explorer. Open the File menu

and select New, then Folder (File, New, Folder). Create a new one called WEBFILES.

2. As we mentioned earlier, a fine editing tool for beginners is Win95's WordPad program. It's located in the Accessories group under the Start button. Click Start, go to Programs, Accessories, and double-click WordPad. Choose New from the File menu to start a new document. When prompted for a document type, select Text Document.
3. Type in the following text and HTML codes just as you see them here. We'll explain what it all means when you finish.

```
<HTML>
```

```
<HEAD>
```

```
<TITLE>Page title goes here</TITLE>
```

```
</HEAD>
```

```
<BODY>
```

```
<H2>Page title goes here, too</H2>
```

```
<P><B>Here is the first paragraph,
in bold type style.</B>
```

```
<UL>
```

```
<LI> a bullet list
```

```
<LI> with two bullets
```

```
</UL>
```

```
<P>Here is another paragraph.
```

```
<HR>
```

```
<ADDRESS>
```

```
Name<BR>
```

```
E-mail address<BR>
```

```
Date
```

```
</ADDRESS>
```

```
</BODY>
```

```
</HTML>
```

4. Now you must save the file in a format the browser can read. Choose Save from the File Menu. For the file name, type **template.htm**. Then, in the File type field, select Text Document. Last, under Save In, scroll to find the WEBFILES directory, double-click to open it, then click the Save button.

A smart title
contains
a clear
description
of what's on
the page.
"Camille's
Web Site"
doesn't spell
it out well.

■ **Viewing The Template.** Once the document is saved, use the Netscape Navigator browser to view the page as it will appear on the Web. Minimize WordPad and open Netscape Navigator.

1. Go to File, Open Page. Where it says Open Location Or File In: select Navigator.
2. Click Choose File. Find the WEBFILES directory, then double-click the Template.htm file you created.
3. Finally, click the Open button. You're now looking at your first Web page offline. Note that the page starts with "Page title goes here, too." The HTML codes above that part of the page do not create anything that appears in your browser window. The information from the TITLE tag, however, should appear in the title bar of the browser window.

Now let's look at the meanings of all those tags you used to create this page.

■ **Basic HTML.** Your template includes many common HTML tags. Notice that most tags are placed in symmetrical "on-off" pairs. These are called **container** tags since they contain text that should be formatted a particular way. Tags are not case-sensitive, but it is useful to type them in all caps so you can differentiate them from page content. Here's a list of the basic tags and what they mean:

<HTML></HTML>

This tag normally begins and ends any HTML document, clearly identifying it as such. Some Web authors don't bother including these tags, and many browsers will forgive its omission. Nevertheless, these tags will alert more sophisticated software that a file is written in HTML. For long-term compatibility, start and end your pages with this tag.

<HEAD></HEAD>

The head tag contains header information such as comments or notes you don't want to display with the rest of the page. The most important item to place in the header is the <TITLE> tag.

<TITLE></TITLE>

This tag contains what browsers interpret as the "official" title of the page. When you save a Web page as a bookmark, for example, the document title is what appears on your list. The title also is what appears at the top of the browser window when someone visits your page. A smart title, therefore, contains a clear description of what is on the page. "Camille Capulet, Résumé" says it all, whereas a general label ("Camille's Web Site") doesn't spell it out nearly as well.

<BODY></BODY>

The body tag contains the meat of any Web page, enclosing all the rest of the HTML tags. Remember that a Web "page" is a

misleading term, since body text can extend for many screens or printed pages.

<H1></H1>

The heading tags <H1></H1> through <H6></H6> enclose headlines and subheads. H1 is the largest; H6 is the smallest. Browsers typically display headings as bold text spaced slightly apart from preceding and following text.

To center a headline, place the ALIGN attribute in the opening tag, like this:

<H1 ALIGN=CENTER>Centered Headline</H1>

<P>

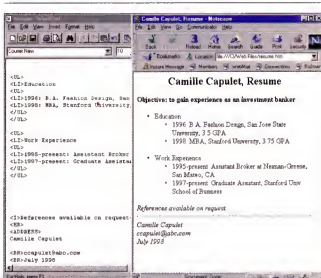
Unlike most HTML tags, the paragraph marker is often used alone, designating the end of one paragraph and the beginning of another. Place it at the beginning of a paragraph where it leaves a single space. Keep in mind that using two paragraph tags will not produce two spaces.

List Item

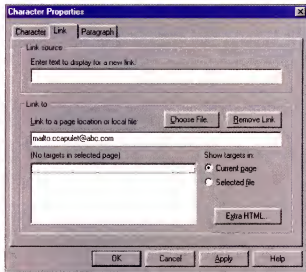
The unordered list (or bullet list) requires the tag. For each list item, use a single tag.

**
**

The line break tag is another solitary tag. It instructs the browser to begin a new line—without leaving a space. It comes in handy



Nested lists created in WordPad display perfectly in the browser.



Add an E-mail link to your résumé using Netscape Composer.

when you want to list an address, as we do in the template.

The bold tag is an instance of character formatting. It tells the browser how to display text.

<I></I>

The italic tag is also for formatting characters.

<HR>

This solitary tag creates a horizontal rule, a line that extends across the Web page. It is regularly used to divide page sections or to separate the last paragraph of text from the document address.

To change the width of the horizontal rule, use the WIDTH attribute and the percentage of the page you want it to cover like this:

```
<HR WIDTH="50%">
```

<ADDRESS></ADDRESS>

The address tag encloses an author's name, address, and often the revision date of the page. Text within the address tags usually appears in italics. To end a line of text within the address tag, use a line break:
.

■ **WYSIWYG Authoring.** Once you understand how HTML works, you're ready to try What You See Is What You Get (WYSIWYG) Web authoring. WYSIWYG tools let you create pages by seeing what they look like as they progress. You'll highlight words

and click a bold button, for example, rather than using the tag. It's basically like working in a word processor or desktop publishing program.

Once you understand the markup language, if you run into problems using a WYSIWYG tool, you always can go back and "fix" the code in WordPad.

1. Still in Navigator, go to the Communicator menu and select Page Composer.
2. In Composer, click File, Open Page, Choose File. Browse to find the Template.htm file. Double-click Template.htm.
3. In the Open Page dialog box, specify you want to open the file in Composer. Click Open.
4. What you see looks like a Web page, but it is actually the Composer interface. To get an accurate representation of your pages in Composer, you must use the Preview button.

■ **Résumé Creation.** To create a new document based on the template, use the Save As function.

1. In Composer, go to File, Save As. Type in the name of your new document: **resume.htm**. Then click Save. (NOTE: You also can use the Save As function in WordPad to create documents from the template.)
2. You may be prompted to type in a title for the new page. Type in "Your Name, Résumé" and click OK. (Yes, use your own name!) The words you enter are inserted automatically into the document's <TITLE> </TITLE> tag. You also can use WordPad to edit the HTML code yourself to change the TITLE tag to the name of your new page.
3. Now, use Composer to turn the dummy text into résumé text. For starters, change the words "Page title goes here" to "Your Name, Résumé." (See our example.)
4. In the first boldface paragraph, type in your career objective.
5. In the last paragraph, state that you'll furnish references on request.
6. Next, type over the template text in the areas for your name, E-mail address, and the date. Don't forget to save your work!

As you modify the template, you may notice that Composer loses some formatting. We noticed for example, that Composer did not italicize our complete address. It's a good thing we know HTML! To fix glitches like this, return to WordPad.

1. Go to WordPad and choose File, Open. Select Resume.htm.
2. Scroll down to the <ADDRESS></ADDRESS> tag. Here's our problem: The <ADDRESS></ADDRESS> tag does not contain the date or E-mail address. Use your cut-and-paste skills to place the </ADDRESS> tag after the date. Rearrange the line break tags (
) if necessary.
3. Save the file when you finish making the repairs. Be sure to keep it as a text document. Close WordPad.
4. Return now to Composer. You may get a message that asks whether you'd like to reload the page to see changes. Click Yes. Remember that Web browsers look at a file once and display the page based on what they see. It's not a continuing feed of information. For a browser to reflect any changes in an HTML file, the browser must reload the page from wherever it's stored.

You may notice Composer automatically adds extra tags to your document or moves tags around. Don't worry about this; we'll address this phenomenon next month.

The changes you made in WordPad should be reflected in Composer. If not, try clicking the Preview button.

■ **HTML Lists.** Return to Composer. We'll show you how to use HTML lists to fill out the rest of your résumé.

1. After the first bullet, replace the dummy text with the word Education.
2. Press ENTER. Another bullet appears, but we don't want this bullet. Instead we want to list our degrees. To remove the bullet, go up to Formatting toolbar in Composer and click the bullet list icon. This will toggle off the bullet. Now list your educational history.
3. After the second bullet, type Work Experience. Follow the above example to list your work history.

Nested lists. A clever trick to know is HTML list nesting, the technique of placing one list within another. Use nested lists to achieve handsome outline effects. In our

résumé, for example, we'd like to nest our college degrees under the initial bullet. Here's the HTML syntax we'll use:

```
<UL>
<LI>Education
<UL>
<LI>Bachelor's Degree
</UL>
</UL>
```

As you see, for each list that we open with ``, we close with ``.

This trick is too complicated for Composer. To create nested lists, let's return to WordPad. (Again, save your work!)

1. In WordPad, open the `Résumé.htm` file again. Scroll down to the first ``. After the word Education, type another ``, then another ``.
2. After this list item, type in your college degree. If you have another degree to list, type another list item. When finished, close the nested list with a `` tag.
3. Save the file as a text document.
4. Return to Composer, clicking to reload the file. The bullet for your degree appears indented below the Education bullet. It should look similar when you click the Preview button.

Next, create a nested list under Work Experience.

■ **More Tweaks.** The résumé is starting to look good, but it needs a few tweaks.

1. Let's center the initial headline. In Composer, use your cursor to select the text. Then click the Alignment icon. (It's the last button on the right on the Formatting toolbar.) From the drop-down list, select the centered-text option.
2. Make Education and Work Experience bold. Highlight each word and select the large capital A on the formatting toolbar.
3. Now select the "references available" sentence and bold it by clicking the italicized capital A.

■ **An E-mail Link.** Finally, to make it easy for prospective employers to contact you, let's include an E-mail link in your page. Here's how:

1. Still in Composer, highlight your E-mail address.
2. Go to the Insert menu and select Link.
3. In the Link to field, type in the following:

`mailto:yourname@youraddress`

replacing "yourname@youraddress" with your E-mail address.

4. Click OK. The address is now hot-linked to automatically send E-mail to you.
5. Click the Preview button. Try clicking the E-mail address. The mail window in Netscape appears. Let's hope your résumé attracts some headhunters!

■ **What's Next?** That's enough for lesson one. Spend some time practicing with the tools introduced so far. Try creating new files from your template. Get comfortable moving back and forth between WordPad and Composer. Experiment with creating lists for various types of information.

Next month we'll show you how to add touches like colored text, graphics, and hyperlinks to your résumé. We'll also talk about "debugging" Composer's HTML code and uploading your résumé to the Web. ■

by Marti LaChance

More HTML Resources

We suggest more practice with HTML. To bone up, there's no better place for information than the Internet. Here are a few Web sites we recommend:

World Wide Web Consortium's (W3C) Home Page for HTML
<http://www.w3.org/MarkUp>

It can be rather technical, but W3C's page has the latest specifics on HTML tags and their use.

Crash Course In HTML
<http://www.w3-tech.com/crash/HTMLMenu.html>

This cute, interactive tutorial is excellent for beginners.

Beginners Guide To HTML
<http://www.ncsa.uiuc.edu/General/Internet/WWW/HTMLPrimerP1.html>

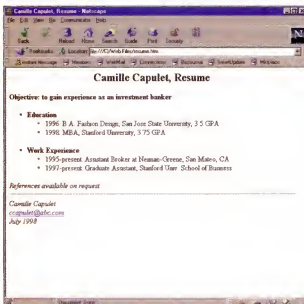
The National Center for Supercomputing Applications' (NCSA's) in-depth guide is a terrific HTML guide. It's a surprisingly quick read, too.

WebMonkey tutorial
<http://www.hotwired.com/webmonkey/teachingtool>

Wired magazine's Web Monkey tutorial is a good place for intermediate users who want a refresher course. It's also a great site for learning Internet history, advanced HTML techniques, and Web design.

The Compendium Of HTML Elements
<http://www.htmcompendium.org/index.htm>

"The Compendium" is a huge list of HTML tags. In addition to its exhaustive collection, the Compendium reports on which browsers support a tag, how to use it, and how it looks. It even explains what may go wrong. It's highly recommended for Webheads. □



Here's our résumé. Next month we'll dress it up a bit and upload it to the Internet for the world to see!

PC Insurance



Thanks in part to E-mail and the World Wide Web, it can be hard to imagine working at your home office without a computer. But all it takes is one computer-frying power surge to find out how chaotic life is sans a computer.

Fortunately, your loss may be one of only time and convenience because your homeowners or renters policy covers your home PC, right? Maybe not. Even if it does, it might cover only a fraction of the cost of buying a new computer. When it comes to determining whether your computer is covered under another policy, you will run into quite a few complexities. The best way to find out is to talk to your insurance agent, but the basics covered here cover the generalities.

■ **Homeowners & Renters Policies.** Your insurance policy will probably cover computer damage resulting from accidents beyond your control, such as fires, storms, lightning strikes, and power surges.

But it doesn't cover accidents you're responsible for such as spilling a drink on the computer or dropping your portable PC.

Homeowners and renters policies also might not cover the entire cost of replacing your computer. Some insurance companies let you choose whether you want to insure the replacement cost of your property or, for a lower premium, its current value. Your computer is almost certainly worth less than its replacement cost. A computer more than a year old may be worth only a few hundred dollars, but the cost to replace it would probably be more than \$1,000. Some homeowners and renters policies cover the replacement cost, or, if it is not, you can pay a slightly higher premium to obtain that coverage.

If you can't obtain the replacement costs covered under your homeowners or renters policy or want more protection, you have two options. You can schedule your computer on your policy or go to a different insurance company for a policy on just your computer.

■ **Scheduling.** When you schedule property, also known as endorsing, you're essentially insuring that piece of property against virtually anything. You'll pay more, but you'll receive more coverage—those accidents that you're responsible for will be covered after all and the computer will be covered for the full replacement cost. The only major exception to this type of insurance is floods and earthquakes, which generally require coverage under separate insurance. Scheduling can be cheap. Depending on where you live and your insurance company, the cost to schedule property on your homeowners or renters policy could be as little as \$1 per \$100 of property per year. For example, a \$1,500 computer would cost \$15 a year to schedule. That's peanuts when you consider what you could end up paying to replace the computer. What's better, with some insurance policies, there's no deductible if you schedule the computer.

American Family Insurance agent Carrie Widger of Lincoln, Neb., says, "It's up to (the customer)," but she would recommend scheduling a computer, especially an expensive one.

"Our policy covers \$5,000 for computer equipment, but the deductible applies if something happens," she says. "If they put it on a schedule and endorse it onto the policy, normally there's no deductible, and you get better coverage."

Note that you can start such coverage with computers you already own. Widger says there is no statute of limitations when it comes to insuring property. You don't have to take chances if you didn't insure your computer at the time of purchase. While your computer is probably worth less now than when you bought it, if you schedule your insurance, you usually still can get your insurance company to cover the full replacement cost.

■ **Computer Insurance Policies.** Not all insurance companies offer the option of scheduling your computer, however, so check with your agent. If you cannot obtain this coverage, but don't want to switch insurance companies, consider buying a policy from an insurance company that offers policies covering only your computer.

Safeware is one such company; by its estimates, it insures one in every 1,000 PCs in the United States. Safeware offers more comprehensive coverage for expensive computers—with a coverage limit of \$15,000—and more protection for portable PCs. These policies also

cover the full replacement cost. Safeware spokesperson Jennifer Blackburn says, "There is no deduction for depreciation."

For example, if you bought a then top-of-the-line 486 computer several years ago, insured it, and lost it tomorrow in a fire, your coverage would buy you today's top-of-the-line computer, the Pentium II.

■ **If You Still Need More...** An insurance policy for your computer or scheduling your computer are also good ideas if you own a particularly expensive computer. Most insurance companies set a limit on how much computer equipment they'll cover under the homeowners and renters policies. Allstate and American Family, for example, cap the coverage at \$5,000. A setup with a high-end computer and expensive peripherals could exceed that limit. A fire could destroy both software and hardware, so consider whether the hundreds of dollars worth of software you own would put you over the limit. The limit with computer-specific policies such as Safeware's is generally higher than you would find on a homeowners policy. For example, Safeware will insure up to \$15,000 worth of computer equipment. Likewise, if you schedule your computer with your regular insurance company, you can go over the \$5,000 limit.

■ **Portables.** Some insurance policies even cover your personal property when you are away from home. Say someone breaks into your car and steals your portable PC—which you probably shouldn't leave in your car anyway. Your insurance will cover it. But, of course, the generosity of insurance companies has its bounds. Limits on the amount of property your homeowners policy will cover outside the home do apply. A typical limit is 10% of the maximum amount covered by your policy. For example, if you are insured for \$15,000 worth of property, you would be covered for \$1,500 away from home. Many portables cross that \$1,500 value mark, and there is still the deductible to worry about. Because portables are also more likely to be used outside the house, obtaining an insurance policy for them might be a good idea.

"A lot of times the basic homeowners policy will only cover you for personal use at your home location," Safeware's Blackburn says. "Our policies will cover you for business and personal use, and we cover you at any location within in the U.S. and Canada."

Portable PCs, due to their mobility, are also more likely to be damaged than a desktop computer through falls or too many rough rides in cars and briefcases. "Every time a computer is thrown in a brief case or pulled from an overhead rack, there is an accident waiting to happen," says David Johnston, a Safeware CEO.

■ **Home Businesses.** If you run a business out of your home, neither homeowners nor renters policies will cover your computer equipment. You will need to buy a small-business policy or obtain coverage from a company that specializes in insuring computers.

If you obtain an insurance policy from a comprehensive company such as American Family, you can not only insure the cost of your hardware and software, but also the cost to replace custom-written programs and replace data such as client databases.

"When you buy a business owner's package policy, there's electronic data processing (EDP) coverage you can buy to cover your specific data," Widger says. Most businesses get the coverage if they have computers, she says.

Is it worth the money? "You bet," Widger says. "What happens if you lose all your data? Say you have a specific program you've designed for your business. That's another thing to get the EDP coverage for because those special-made programs need to be covered." Software custom designed for a business can cost hundreds, if not thousands of dollars to develop. Likewise, the cost in labor to re-create a large client database can also be quite high.

■ **Your Agent Knows Best.** Every insurance policy and company is different, so speak to your agent to make sure you have the insurance you want. Key questions to ask—aside from whether you have computer coverage—are:

- Am I covered for the replacement cost or the value of the computer?
- What kind of accidents (known as "perils" in insurance-speak) am I insured against?



"The Leading Source for Computer Insurance!"

5760 N. High Street
PO Box 656
Columbus, OH 43086
Telephone: (614) 781-1492
Toll Free: 1-800-800-1492


SAFWARE,
The Insurance Agency Inc.

SAFWARE

YOUR COMPUTER IS AT RISK?

Disaster strikes more than 3,855 computer users just like you EVERY DAY! This includes theft, fire, power surges, accidental damage, natural disasters, vandalism, earthquakes, lightning and other mishaps. Theft alone is epidemic in the U.S.

SAFWARE Policies Cover:







* Theft * Fire * Accidental * Natural * Vandalism
damage disasters

Safeware Inc. is one of a handful of companies that sells insurance policies for personal computers.

- Is there a dollar limit on the amount of computer equipment covered?
- How much is the deductible?
- Can I buy additional coverage to protect against accidents and if so, how much will it cost?
- Is my portable PC covered if something happens to it away from home?

"Any time you're purchasing insurance, really go over everything thoroughly with your agent," says Allstate spokesperson Pam Tyrdy. "That's part of the agent's job—to help you identify where you might want to purchase additional coverage and where just the standard policy is enough coverage." ■

by John Lalonde

For More Information:

Computerowners Policy
Safeware Inc.
(800) 800-1492
(614) 781-1492
<http://www.safeware-ins.com>

Home Computer Endorsement
Lititz Mutual Insurance Comp.
(800) 626-4751
(717) 626-4751
http://www.lititzmutual.com/policies/home_comp.htm

The Personal Computer Policy
South Coast Metro Insurance Brokers
(310) 937-1537
<http://www.insurepc.com>

Web Browsers

Switching Channels In Explorer 4.0

EXPLORER 4.0



In the heels of the push technology buzz came a wave of push disparagement. *Internet Explorer 4.0's* Active Channels feature gives users a sample of what push does so they can decide for themselves.

Push content refers to customized information sent to you automatically or downloaded by your computer. Instead of you searching for your favorite World Wide Web daily news page, for example, a push page arrives directly in your E-mail Inbox or shows up on your Desktop all by itself. Push is a more efficient system for getting content you know you want to see on a regular basis.

Microsoft points to its Active Channel lineup when the conversation turns to push content, making it out to be something slightly more spectacular than sliced bread. In reality, Channels are only glorified Favorites—the shortcuts or bookmarks used to quickly access selected Web pages. Channels add a little flash along with the organization that is helpful for new users. The best way to understand the concept is to start exploring.

■ Tuning In. If you recently installed Explorer 4.0 there should be a Channel Bar on the Windows Desktop. This toolbar, replete with fun little buttons, offers a direct link to the major channel categories as well as a few lucky sites that pay Microsoft a suitable consideration to have their own buttons.

If the Desktop lacks a Channel Bar you may not have Windows set up for Web views. In that case, open Channels by clicking the satellite dish icon on the Taskbar or the same icon in Explorer 4.0's toolbar. For the full effect, make sure the Full Screen button (it looks like one square inside another) also is clicked. Explorer expands to fill the entire screen.

Along the left side, the full-fledged Channel Bar appears. Run the mouse over the buttons to see spiffy graphics and in some cases a pop-up Channel description. Clicking some of the buttons opens sub-folders of Channels, while other buttons immediately take you to a specific Channel. Notice when the mouse moves away from the Channel bar, the bar disappears off the side of the screen. Bring the bar back by moving the mouse to the edge of the screen.

First click the Channel Guide button, which commands the browser to download Micro-

downloaded. When new data arrives, an asterisk appears in the upper-left corner of the page name in the Channel Bar.

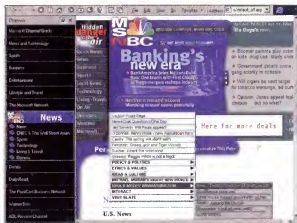
To subscribe to a channel, click the Add Channel button on the Channel's page and follow the on-screen instructions. Customize the subscription or stick to the Channel publisher's recommendations by clicking Next. During subscription setup, some channels offer the nifty feature of displaying themselves in Screen Saver mode.

■ Remote Control. Channels and subscriptions in general are most convenient with computers connected to the Internet all day. That way the content can stay fresh through automatic information downloads. Channels also provide a good way for computers connected to the 'Net to grab all the information you care about in one bite for relaxed browsing later. By the end of the day the pages might be a little stale, but it beats not having the Web.

New users will find Channels a good way to discover the amazing variety of Internet content, but more experienced users will notice surfing channels is really no different from visiting Favorites. In fact, the Favorites toolbar button in Explorer 4.0 will pull up a Favorites bar on the left side of the screen that works almost exactly like the Channel bar. Favorites even can become "Channels" when you drag their shortcuts in the Favorites drop-down list into the Channels folder.

For Microsoft, Channels are a way to charge content providers for a ready-made shortcut on the world's most popular Desktop. Whether this is the kind of thing the Justice Department will continue to allow is an open question, but for now the money also buys newer users some of the feel and convenience of an online service pushed right into their browsers. ■

by Alan Phelps



Internet Explorer 4.0's Active Channels are a handy way to start exploring the Web with information you want.

soft's gallery of interesting content. In many ways this environment resembles an online service, with Web sites neatly categorized into easy-to-manage groupings. Each category shown in the Guide features a selected Channel that changes every few seconds. Clicking a category pulls up a searchable index of channels; clicking one of the icons provides more information about a Channel and instructions on how to subscribe.

You can view Channels without subscribing, however. You can browse Channels as normal Web pages—in fact, that's what they are. A subscription is only necessary to get the full push feel of the Channel idea. A subscription sets up times throughout the day when the Channel content is automatically

Going Online

Hold A NetMeeting



It took the invention of powerful home computers and the Internet, but videoconferencing is finally beginning to dip into the mainstream. *Microsoft NetMeeting*, a free component of the *Internet Explorer* World Wide Web browser, lets anyone with a 'Net connection and a few friends host a virtual gathering.

NetMeeting 2.1 supports audio and, with a video camera attachment, video communication at no charge other than what you pay for an Internet connection. The latest version of the software is available for free at <http://www.microsoft.com/netmeeting>.

■ **Meet 'N' Greet.** When NetMeeting runs for the first time, a setup wizard jumps up to pick a directory server (a computer providing information to a network) and tune your sound hardware for speaking and listening. Follow the on-screen instructions to pick the default server for now. With the preliminaries out of the way, NetMeeting attempts to log onto the directory server and download a list of other people logged in at the moment from around the world.

To place a call, scroll through the directory list and double-click a name. If you know the E-mail address the other party uses on this server, save time by clicking the Call button and typing the information manually.

Tame the large directory by clicking column headings to sort information. For example, click Last Name to list other users alphabetically by last name. Click the dropdown list next to Category to view only those people not currently in a call, people who label themselves as "personal" or "business," or only people in your country.

Users can send and view audio and video with just one other caller at a time. It's

possible, however, to switch from one person to another in a meeting of multiple people. In fact, different pairs of people can talk to each other simultaneously during a single meeting, then swap.

If you find the program useful, set NetMeeting to start automatically in the background of Windows so you're always able to receive incoming calls. Under the Tools menu, click Options and choose Run When Windows Starts on the General tab. Obviously this only makes sense for people connected to the Internet on a full-time basis. If that option is available (usually through a corporate

see. It includes the capability to flip over a new blank page and then look at thumbnails of all the active pages so you can flip back to a certain drawing. File Transfer provides a quick way to send and receive data.

NetMeeting even lets users share applications. During an active call, click Share Application under the Tools menu and select the name of an open application. All users in the meeting will see the application and even use it if you also click the Start Collaborating command.

■ **Keeping In Touch.** Under the Speed Dial menu you can add selected persons to your preferred list. Clicking the Speed Dial icon on the left side of the screen pulls up that list and lets you know whether friends and associates are logged in and ready to accept calls. Under Tools, Options, and the Calling tab, check Automatically Refresh Speed Dial List. Every few minutes NetMeeting will check to see if anyone on your speed dial list is logged on.

NetMeeting lacks a filtering feature we expected to find. The public server directories can be a way to meet some rather randy folks. Many of the users we saw included words



NetMeeting makes it easy to find and talk to friends, such as this nice man who wanted to sell us property in the Bahamas.

network), you can publicize your NetMeeting address by sending shortcuts to associates through E-mail (look under the Speed Dial/Add Speed Dial option). You even can put a special Hypertext Markup Language (HTML, the Web's programming language) link on your Web page (search for "HTML" in the program's Help file for the coding).

NetMeeting users can shake hands online in a variety of ways other than the obligatory audio and potential video. The Tools menu contains commands for starting Chat, Whiteboard, and File Transfer utilities. Chat opens a text window to type messages in real time (other users see your words almost immediately after you type them). The Whiteboard provides a place to jot down scribbles and pictures that everyone in a meeting can

in the "comment" field of their description indicating they were looking to chat about a little more than just the weather. You can choose not to publicly list yourself in the directory on the Calling tab in Options, but we found no way for parents to limit outgoing calls to only the family and friends listed in Speed Dial.

Aside from needing that potential family-friendly improvement, NetMeeting is a useful and advanced conferencing tool for local networks and the Internet. Users with a video camera or even just a microphone should have fun keeping in touch or finding new friends around the world. ■

by Alan Phelps

WordPerfect 6.1

Using Formulas In Tables

6.1 FOR WIN



ou may have already discovered the convenience of using tables within your WordPerfect documents. The Tables feature lets you organize your information into horizontal rows and vertical columns that look similar to a spreadsheet program.

The spreadsheet similarities even extend beyond looks into actual performance. WordPerfect's Table Formula feature bar provides many powerful spreadsheet capabilities so you can efficiently work with numbers within your tables. Rather than totaling numbers manually, for example, you can use the Sum function to automatically add them. If the numbers change later, you can adjust the total by pressing the Calculate button on the Formula toolbar.

You can insert functions into formulas with a couple of mouse clicks and copy formulas to other locations, increasing your efficiency. The feature bar also contains other spreadsheet features, including row and column indicators, range names, manual and automatic recalculation, and data fill.

■ Creating Formulas. Although you can type formulas directly into a table, the Table Formula feature bar is a convenient way to create and insert formulas. Display the feature bar by opening the Formula Bar from the Table menu (Table, Formula Bar).

The most common formula is Sum, used to add up the values of specified cells. Place the insertion point directly below or to the right of the cells you want to total, or select a range of cells to calculate that includes an empty cell at the end for the formula. Choose Sum from the Formula feature bar to insert the formula.

To insert a predefined WordPerfect function, select Functions

from the feature bar, choose the appropriate function from the drop-down list, and click Insert. Then define any arguments in that function. For example, if you want cell C10 to contain the average of cells C2 through C9, place your insertion point in cell C10, click Function, select AVE(list), and click Insert. The Edit text box will display AVE(list) with "list" highlighted. Either manually type C2:C9 or highlight the cells. Then either press ENTER or click the green check mark to the left of the Edit text box to accept and enter the formula AVE(C2:C9).

Display the row and column headings to make navigation easier. Click the Row / Column Indicator button on the feature bar. This also lets you select an entire row or column by clicking its number or letter indicator.

If you plan to manually type any part of the formula, click the cell that will contain the formula, and then click the Edit text box. You must type into the Edit text box; if you type directly into the cell, WordPerfect interprets your entry as a label instead of a formula.

As you enter the formula, you can insert cell addresses into the Edit text box by clicking the mouse pointer in a cell or by selecting a range of cells. Insert functions by clicking the Function button on the feature

bar. To enter a range name, click the Names button, select the appropriate name, and select Insert. Create range names by highlighting the cells included in the range; clicking Names, Create; and entering a name for the range.

■ Other Table Tools. To delete items in a table, place your insertion point in the appropriate location and choose Table, Delete. Then specify whether you are deleting a row, a column, the contents of a cell, or the formula only. You also can select cells and press the DELETE key to delete their contents.

To copy a formula to other cells, place the insertion point in the cell containing the formula you want to copy. Choose Table, Copy Formula or select Copy Formula from the Formula feature bar. Specify the cell(s) to which you want to copy the formula or select Down or Right and enter the number of times you want to copy.

Data Fill helps you quickly fill in incrementing data across a row or down a column, such as days of the week or a series of numbers. Enter data in at least two cells to create a pattern. Select those cells and extend the selection to the cells where you want the pattern continued. Then choose Data Fill from the Table Formula feature bar.

By default, WordPerfect recalculates formulas manually, meaning that you need to click Calculate in the feature bar to reflect any changes you make to numbers within the table. If you want formulas to automatically recalculate as you go, click Table, Calculate and choose Calculate Table (for a single table) or Calculate Document (for all tables within the document). To return to manual recalculation, select Table, Calculate, Off. ■

	JAN	FEB	MAR	APR	MAY	JUN
Electric	46.53	38.80	33.31	37.24	36.63	49.81
Water	19.30	19.10	19.30	21.36	24.00	27.30
Gas	124.77	96.52	70.69	50.78	43.39	16.95
Garbage	21.00	21.00	21.00	21.00	21.00	21.00
Phone	46.64	42.12	46.28	69.74	51.18	45.64
TOTAL	267.64	217.54	190.58	200.10	176.19	160.70

The Table Formula feature bar provides a convenient way to enter formulas into a WordPerfect table.

by Diane Kaye Walkowiak, M.A.

Lotus 1-2-3 5.0

Modifying Elements In A Chart

5.0 FOR WIN



o you say you know how to create charts to graphically display numeric data. But do you know how to clearly display your information?

Most of the time you just select Chart from the Tools menu or click the Create Chart Smarticon to automatically generate a chart from a preselected range of cells. The default bar chart may fit your needs, but a different type of chart could illustrate your data more effectively. You also can modify elements in each chart so it is easier to read and more visually appealing.

■ Changing Chart Type & Style.

Several chart types are available: Line, Area, Bar, Pie, XY (Scatter), HLCO (high, low, close, open), Mixed (bar and line), and Radar. The line, area, bar, and pie charts also can be displayed with a three-dimensional effect.

Choosing the best chart for a given set of data is often a matter of personal preference, although some lend themselves better to certain applications. For example, a pie chart graphs a single data range, showing parts of a whole, and an HLCO chart shows fluctuations in data over time, such as stock market prices.

To change the chart type, select the chart and click Type from the Chart menu. Experiment with the different chart types in the Type dialog box to see which one best represents your data.

The dialog box display will change to reflect your choice. The display will include different styles within that type, such as a stacked bar chart or a line chart with just symbols and no lines. Click the style you want. Within the dialog box, you can change the orientation from vertical to horizontal. You also can include a table below the chart that shows the values used to graph each range.

■ **Modifying Other Elements.** You can change other elements of the chart so it displays your data in the most effective manner. Move elements within a chart by dragging them to a new location. Resize a selected object by placing the mouse pointer over one of the selection handles so it changes to a four-headed arrow. Click and drag to resize. (NOTE: Not everything can be resized.) Delete a selected object by pressing the DELETE key (you cannot delete the plot, x-axis labels, or y-axis scale).

The whole chart can be resized, moved, or deleted. To measure the chart size while resizing, click Set View Preferences from the View menu and choose Inches for the Worksheet Frame drop-down list box. When you finish using the ruler frame, go back to Set View Preferences from the View menu and choose Standard from the drop-down list box to return to row numbers and column letters.

Titles, footnotes, and legends can clearly describe what the data represents if they are labeled correctly. To enter a main title, subtitle and/or footnotes, click Headings from the Chart menu or double-click the chart element you want to add to or change. Type in the text or enter the cell address containing the text and mark the Cell check box. You also can specify the text alignment.

The legend shows which data range each color, symbol, or pattern on the chart

represents. To modify the legend, click Chart, Legend. Select a data series letter and type the label or enter the address of the cell containing the label text and mark the Cell check box. Indicate the placement of the legend on the chart.

You can change x- and y-axis titles so they are more descriptive. Click Axis from the Chart menu, select the axis you want to change, and enter the title. Within the same dialog box, you can change the axis scale's upper and lower limits and the tick mark intervals to improve readability.

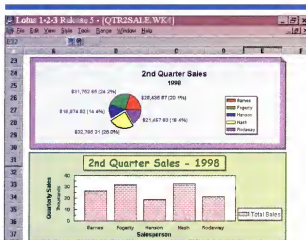
By default, minor interval tick marks don't appear; generally major tick marks at appropriate intervals are sufficient. To reduce white space at the top of the plot, make the Upper limit closer to the largest value in the chart. If your chart contains widely fluctuating data, the smaller data points may end up directly on the x-axis. If so, click the Options button and change the scale from standard to logarithmic.

If the x-axis is crowded with labels, you can display just some of the labels if the missing labels would be obvious. In the Axis dialog box use the Place Label Every (.) Ticks field (choose Axis from the Chart menu).

It is sometimes helpful to know the exact value of a data range. Select Data Labels from the Chart menu and choose a data series. Specify the range of labels and indicate the

placement of the label in regards to the data point. For a pie chart, the Data Labels dialog box will allow you to show values and/or percentages corresponding to each pie slice, hide labels, and explode slices from the pie.

A background grid may make it easier to interpret data points in a chart. Click Grids from the Chart menu and select a grid type for the appropriate axis. Change the visual appearance of elements within the chart by right-clicking them, selecting Lines & Color and/or Font & Attributes, and making the desired changes. ■



In Lotus 1-2-3, the same data can look extremely different depending upon how you modify the chart.

by Diane Kaye Walkowiak, M.A.

Quicken Deluxe 6.0

Using Electronic Bill Payment

6.0 FOR WIN



s the personal computing industry exploded more than a decade ago, forward thinkers predicted PCs would quickly lead to a paperless society. We're still waiting.

While some areas of society are now more near becoming paperless, the financial industry is headed in that direction. For example, you can use *Quicken Deluxe 6.0's* online payment service to pay bills without writing a check or licking a stamp.

Before deciding whether to use online payment, you will need to contact your bank and determine whether it offers electronic banking services. Some banks even let you control all aspects of your accounts—not just bill payments—through your computer. If your bank doesn't allow you to make bill payments through Quicken, it may offer its own software package for performing online transactions through a direct telephone line connection or through the World Wide Web. Quicken doesn't charge you for making the electronic payments, but your bank might.

■ **Drawbacks.** Online payment won't appeal to everyone. If you mail fewer than 10 bill payments per month, electronic bill-paying may not be cost-effective for you, depending on how much your bank charges. If you procrastinate, you will have problems because most electronic bill-paying services require you to transmit a payment a few working days before the due date.

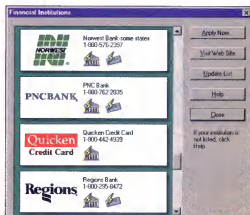
Not every bank is available for direct use with electronic bill-paying through Quicken. To see the list of supporting banks, click the Features menu and choose Online, Online Banking Setup, and then the Financial Institutions command. Click the Update List button to find new institutions that have been added to the list. If you bank at a non-participating institution, you can use Quicken with a third-party electronic bill-payment service, such as Intuit Services Corp. (ISC) or CheckFree (<http://www.checkfree.com>).

Another disadvantage is some users do not trust the idea of clicking a button to send a payment as much as the traditional method of using a handwritten check and the U.S. Postal Service. But by using an electronic payment, you can save yourself several steps and minutes. If you already use Quicken to record all of your transactions, you will save a few steps by paying bills electronically through Quicken. You also can pay all of your bills once a month, scheduling them to be paid electronically at their due dates.

■ **Setup.** Choose an account that you have check-writing privileges with to use with online payment. (NOTE: The following instructions only apply with Quicken's participating institutions or with ISC.) Now click the Online button in the icon bar at the bottom of the main Quicken Register window and click the Get Started With Online Banking & Investment option. In the Get Started window, click the Apply For Online Services button and follow the step-by-step instructions for applying for online bill-payment services. When you reach the window asking you to choose your financial institution, you'll need to choose Intuit Services Corp. (at the end of the list) if your bank isn't contained in the list. If you know your bank should be on the list, but you don't see it, click the Financial Institutions button and then the Update List button.

To complete the signup process, Quicken will dial either the ISC or your bank to transmit your account information via modem. Within several days, you should receive a letter from your financial institution providing you with the additional setup information you will need to access your account, including a personal-identification number (PIN).

Once you've this information, click the Online button in the icon bar and click the Get Started With Online Banking & Investment option. Then click the Set Up Online Services button and follow the instructions. Be sure to choose the correct account to use with online payments and click the Enable Online Payment box in the second window. You'll set up one account at a



Click the Update List button to see whether your financial institution has been added to Quicken Deluxe's electronic banking list.

time; if you're using multiple accounts, you'll have the opportunity to set them up after entering the information for the first account.

To send an online payment, click the Online button and select the Go To The Online Banking & Investment Center option. Select the account and financial institution to use. Then fill in the information in the check window just as if you're writing a paper check. Click the Enter button when you finish.

If a payee is specified who has never received an online payment from you before, you will need to set up the information for the payee, including an address and phone number. (NOTE: Even if you have previously entered the address and other information of a payee as part of your Checking Register, you may need to re-enter some of this information for online payments.) Click the Repeating button to schedule monthly payments. After you enter all your payments, click the Go Online button to send the bill payments to your bank or ISC. You'll need to enter your PIN before Quicken will send the payments.

When entering a payment date, be sure to allow a few working days of lag time—five days are usually enough. After Quicken makes a few payments to your payees, it will estimate the actual lag time needed for each payee. ■

by Kyle Schurman

PowerPoint 97

Create Impact With A Movie

97 FOR WIN 95



ny presenter's goal is to make a strong impression on the audience. A great way to do that is to include a movie clip in your presentation and use it during a slide show to catch

your audience's attention, drive home a point, emphasize information, or demonstrate a procedure.

Sound hard? It's not, thanks to *PowerPoint 97's* support for multimedia objects such as movies. Adding one to your presentation is easier than you think. Try it, and you might even impress yourself.

■ Inserting A Movie.

You can insert a movie clip (sometimes called a video clip) two ways: from the Clip Gallery or from a file. Many people prefer the Gallery because it's easy to work with and lets them preview the movie before inserting it in a presentation.

To use the Gallery, make sure you have the *Office 97* program CD-ROM in your CD-ROM drive. *PowerPoint* includes several movies on this CD-ROM that you can use. In Slide or Notes Page view, display the slide on which you want to place the movie. Choose Insert, Movies And Sounds; then choose Movie From Gallery. On the Videos page of the Clip Gallery you'll see icons that represent the opening screen of each movie. You can even preview a movie in the Gallery. Just select it and click the Play button. The movie plays in a separate window, which closes automatically when the movie finishes. When you find the movie clip you want, double-click the clip to insert it in your presentation.

■ **More Clips.** Rather than using the Gallery, you can access movies on your hard drive (or on a network) or even from

the World Wide Web. To do this, first copy the file from your CD-ROM (or other source) to the hard drive. Then choose Insert, Movies And Sounds, Movie From File. Locate the folder that contains the movie, then double-click the movie file to place it in your presentation.

Additionally, if you installed the Clip Gallery, you can connect to the Clip Gallery Live, which is a Web site for previewing and downloading additional movies. Choose Insert, Movies And Sounds, Movie From Gallery to display the Clip Gallery. Click the Connect To Web For Additional Clips button (in the lower-right corner of the dialog box).



The right video clips help hold an audience's attention. You always can find a fresh clip on the World Wide Web in the Clip Gallery Live.

Then complete whatever steps you typically do to go online. Once you're on the Web, the Clip Gallery Live appears so you can preview (and download) movie clips.

■ **Play Options.** You also can play the movie clip *after* it's inserted as an object in your presentation. In Slide view, play it by double-clicking the movie object. In a slide show, rest the pointer over the object until a hand icon displays; then click once.

Additionally you can loop a movie during a slide show, which makes it run repeatedly until you advance to another slide or tell *PowerPoint* to stop running it. To do this, right-click the movie object in Slide view and then choose Edit Movie Object from the

shortcut menu. In the Play Options dialog box check the Loop Until Stopped box, then OK. Choose View, Slide Show to start your slide show. Click the movie clip to start playing it continually. You can stop running the movie by pressing the ESCAPE key once, or by going to another slide.

You also can make a movie play automatically when a slide displays, instead of having to manually click the clip with the mouse. In Slide view choose Slide Show, Custom Animation. On the Timing page, click the Media object that represents your movie on the Slide Objects Without Animation list; then click the Animate option button. Click the Automatically option button, then enter the number of seconds you want to elapse after the slide displays before the movie plays automatically. Click OK to close the Custom Animation dialog box. Then test your animation by running the slide show without clicking the movie object. Sit back and let *PowerPoint* play it automatically.

■ Running Smoothly.

You can let *PowerPoint* determine the best size for a video to make it run more smoothly. In

Slide view, click the video to select it; then choose Format, Picture. Click the Size tab and check the Select Best Scale For Slide Show box. Click the Reset button before closing the Format Picture dialog box. You also can resize a movie just as you can any other object by clicking to select the object and then dragging a handle. If you accidentally change it to the wrong size, however, it'll skip when it is playing.

Add movies here and there in your presentation to punctuate the important points and add some impact as well. ■

by Linda Bird

Print Shop Premier

Headline Colors & Watermarks



he graphics toolkit in *Print Shop Premier Edition 5.0* lets even desktop-publishing neophytes produce impressive-looking documents. Print Shop simplifies the design of effective colorful publications by combining special effect tools such as color blends, tints, and watermarks with convenient toolbars that put these tools within easy reach.

■ **Headline Blends.** Color documents cost more to print than black-and-white, but color-rich projects capture more interest from readers. Print Shop lets you grab attention with projects by coloring a document in several ways.

For example, you easily can add color to existing text. Simply click a text block to select it (if you double-click, you activate Edit mode instead), then click the Color button on the Color toolbar. Print Shop's Color Palette appears. When you point at a color on this palette, Print Shop pops up a preview swatch. Click a color to apply it to the text in the selected text block. You can experiment with different colors to see which one looks best. Print Shop keeps a record of your last six color choices at the top of the Color Palette, making it easy to return to a previous selection.

To add color to Headline text, double-click the headline to select it. In Print Shop's Create A Headline dialog box, click the Customize button to see several options. If you click the Shape tab, then the Color button, Print Shop displays an expanded Color Palette, with a variety of color choices. When you select a color on the palette, Print Shop doesn't automatically apply it to the headline. Instead, the selected color appears in a series of 11 pattern blend samples at the right of the palette. Click a blend to select it, then click OK. Print Shop previews your selection in the Create A Headline dialog box so you can see how your choice will look before returning to the project.

You can choose a Blend Style to set the direction of the color blend pattern. The Color Palette offers eight style choices, including linear, dual linear, radial, square burst, and inverse. These choices correspond to horizontal, round, and square color layouts. You also can adjust a pattern's blend direction by choosing a Blend Angle. Simply click a tick mark on the Blend Angle wheel to make an adjustment.

The color of Headline text doesn't change when you work with options on the Create A Headline Shape tab. Instead, Print Shop applies your choices to the Headline background. Be careful when choosing a color blend pattern for a headline background. The right contrast, such as yellow or ivory type on a dark blue and purple background, is essential for easy-to-read headlines.

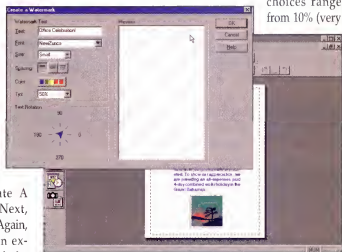
To change the color of headline text rather than the color of its background, click the Face tab in the Create A Headline dialog box. Next, click the Color button. Again, Print Shop displays an expanded Color Palette with the option of choosing a blend pattern, blend style, and blend angle for colors that will apply just to headline text. You can preview your choices on a sample headline before returning to your document.

■ **Say It Subtly.** Using the techniques described above, you can modify text and background colors in any selected Print Shop object. You also can enhance a project's background with several special effects.

For example to place a **watermark** (a repeated line of lightly printed text) on every project page, click the Panel Effects button on the Object toolbar bordering the left side of Print Shop's Design Desk work area. (The Panel Effects button looks like a sheet of red

and yellow paper.) Then choose Watermark from the pop-up menu. When the Create A Watermark dialog box appears, enter your watermark text in the text field, choose a font from the drop-down font list, and select a text size for watermark text from the size drop-down list. You decide what you want the watermark spacing to be (single-, double-, or triple-spaced). You also choose a color for this watermark by clicking the Color button and working with options on the expanded Color Palette.

A Tint Percentage drop-down list lets you adjust a watermark's color intensity. Tint choices range from 10% (very



Print Shop Premier Edition lets you enhance a project's background with a watermark using your custom text.

light) to 100% (very dark). A Text Rotation box lets you choose the angle at which the watermark displays on your project page. Click a tick mark to rotate the watermark in 45-degree increments. Print Shop previews your design choices in the Create A Watermark Preview box. Click OK to accept what you see. Print Shop places the watermark in your project as a background. To remove the watermark, click the Panel Effects button on the Object toolbar, then choose Remove Backdrop/ Watermark from the pop-up list. ■

by Carol S. Holtzberg, Ph.D.

Microsoft Works 4.0

Creating Database Reports

4.0 FOR WIN95



INTEGRATED
SOFTWARE

If you need to organize and display information in a *Works* database, create a report. The Report feature in Works allows you to group, filter, sort, and summarize all or part of your database, for either printing or exporting.

■ The Creation. To start, open the database and select ReportCreator under the Tools menu. Type a name, then click OK. The ReportCreator automatically walks you through the six tabs as you click the Next button on the right side of the dialog box. It even lets you skip back if necessary.

Title. Under the Title tab Works automatically inserts the default title (which is the document name, a hyphen, and then the Report name) as the Report Title; but you can easily change it by typing in a new name in the field. You also can set the Report Orientation and the Report Font and Size. Remember, the title appears only on the first page of the report.

Fields. Under this tab, you'll see a list of your fields in the database. To add a field, double-click it in the Fields Available area; to remove it, double-click it in the Field Order area. In the report, the fields will appear in the order in which they are added. If you do not want the field names printed at the top of each page, deselect that option in the Display Options area. You also can opt to Show Summary Information Only, and later specify that information in the Summary tab area, so the report won't print each record in detail. For example, you might set it up to note that you have 17 employees in human resources, rather than listing each one.

Sorting. You can specify up to three options here, even sorting by fields that do not appear in the report. You can also choose whether to sort the data in ascending or descending order.

Grouping. Each item selected under the Sorting tab receives an area under the Grouping tab. If you don't select a Grouping option, the records are just listed, with no distinction made among similar ones. The When Contents Change option makes it so each group of records—such as your complete contracts in 1973—is set off in the report with a blank line separating one year from the next. With this option selected, you have three additional options: to Use First Letter Only, which sets off the As from the Bs from the Cs and so on; to Show Group Heading, or set off the contents with the field name used as the group heading; and the option to Start Each Group On A New Page.

Summary. In this area, you can include statistical values for the items in your report—such as the average cost of your monthly paper supply, or the minimum and maximum cost of each shipment. This area can really glean meaning from your database. Select any record that involves a number, then pick your math option. If your database does not involve numbers, you can still use the Count option.

After you leave the ReportCreator, making some changes gets tricky, and it may become easier to make a whole new report instead. After you finish, click the Done button. You will then choose to preview or modify the report definition. Select Preview to get the print preview of your report. In the Preview mode, you can zoom in and out or Print.

■ Change It. When you press Cancel to leave the print preview, you'll see the form for the report, in more of a database format. Don't worry if it looks strange. From this window, you can resize any column in the report by clicking and dragging its border (just as you would in List view), then selecting Print Preview under the File menu to see your changes. Also, you can tinker with the sorting, grouping, or filtering of your report by selecting any of those options under the Tools menu.

To go back into your database, select List or Form under the View menu. Later, to go back to a Report, select Report under the View menu and choose the report. Your report will be there each time you open the document (until you opt to Delete Report under the Tools menu).

Finally, if you wish to export the report, select Copy Report Output under the Edit menu. Open your new document, such as the Works word processor, and select Paste under the Edit menu. The format may be a little off, but your information will all be there. ■

by Sarah Scalet

Artist/Artist	Title	Date published
Beatie's, the	Sgt. Pepper	1967
Beatie's, the	White Album	1968
Beatie's, the	Let it be of Beatie's	1969
Bob Marley	Legend	1984
Ernest, James	All Time Greatest Hits 1991	
COUNTY OF TIME		
Carpenters	The Singles	1973
CCR	Chronicle	1991
CCR	Chronicle Volume II	1992
Cline, Patsy	Greatest Hits	1988
Cohen, Leonard	Cohen Live	1994
Costello, Elvis	Very Best of	1994
Cowley, Junkies	200 More Miles	1995
Cut, the	Sonic Temple	1989
Cure, the	Disintegration	1989
COUNTY OF TIME		
D'Inferno, Ant	Imperfectly	1992
D'Inferno, Ant	Puddle One	1993
D'Inferno, Ant	More Joy, Less Shame	1996
D'Inferno, Ant	Living in Clip	1997

The ReportCreator helps you organize specific information from your *Works* database. This report shows CDs filtered from the library database of a music store. They are grouped by letter of the alphabet, and then they are counted.

Filter. This tab lets you Select A Filter. (Filters allow you to work only with records that meet certain criteria.) To include All Records, select that option by highlighting it. The Current Records filter excludes any records marked as hidden. To create a new filter, click the Create New Filter button and walk through the creation steps. If you already have filters they will be in the list. (For more information on filters, see the Works Quick Study in the March issue of *Smart Computing*.)

Microsoft Word 97

Managing Long Documents

97 FOR WIN95



Word 97 excels at managing text and graphics to produce impressive-looking documents. Large projects extending to 20 pages or more, however, load more slowly and save less quickly than smaller files, especially on older computers. It also takes longer to scroll from one page to another.

To maximize productivity, divide large files into smaller, more manageable ones by creating a Master document. Each Master contains several subdocuments that Word treats as standalone, independent files. Subdocuments load more quickly, take less storage space, and consume fewer system resources. If you open a standalone subdocument to make revisions, Word 97 automatically updates the subdocument component in the Master.

■ **Split Into Sections.** You can create a Master document from an existing document or combine several documents into a Master. Subdocuments can share a single, continuous numbering system and a common table of contents. To create a Master document from an existing document, you must format the document with a consistent marker that Word can use to generate the subdocuments. This marker is nothing more than a preset heading style, such as Heading 1 or Heading 2, that you assign to every subdocument section heading.

Open the document you wish to convert. Scroll through the document until you find the first section that is to become a subdocument. Give this section a heading. Then select the heading with the mouse and choose a Heading Style from the drop-down Style list on the Formatting toolbar. You'll apply this same heading style (Heading 4, for example) to every heading that is to mark the beginning of a new subdocument. If the drop-down style list doesn't contain a heading style you like, choose Style from the Format menu (Format, Style), then select a Heading

Style from the list in the Styles window of the Style dialog box.

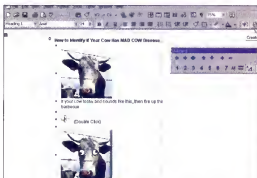
Repeat this procedure of applying the heading style to every starting point of a new subdocument you want to create. When the formatting is complete, return to the top of the document (press CTRL-HOME on the keyboard) to get there quickly). Then scroll to the bottom of the document, this time holding down the SHIFT key and clicking each specially formatted subdocument heading (and its contents) that you want to include in the Master.

After selecting all headings and their contents, choose View, Master Document, then click the Create Subdocument button on the Master Document toolbar. Word automatically partitions the Master document into subdocuments, placing each subdocument in its own subdocument box. It marks every subdocument with a special subdocument icon. Choose File, Save As to name and save this Master document.

■ **Master Change.** When you save a Master document, Word 97 automatically names and saves every subdocument in its own file. The name it gives a particular subdocument depends upon the words it finds in that subdocument's heading. To rename a subdocument or save it to a new location, open the Master document, double-click the icon for the subdocument file that you want to rename or save to a new location, then choose File, Save As.

When you make these changes from an open Master document, you ensure that the Master can keep track of all subdocuments in its file. To change the contents of a subdocument (rather than its name or its Save location), simply open the subdocument. It's unnecessary to open the Master document. Word automatically updates the Master document with any changes you apply to the subdocument.

To create or work with Master documents, choose View, Master Document or click the Master Document View on the Outlining Toolbar. Working in Master Document view is like working in Outline view. Your document



Each subdocument within a Master appears in its own box and is marked with an icon like the one in the upper-left corner of this window.

appears with Outlining marks. Both Outlining and Master Document toolbars appear as well. Choose View, Normal to make changes that affect the entire document, such as adding page numbers. In Normal view, each subdocument appears as a separate section. Every section can have its own header and footer. Alternatively, you can configure all sections to have the same headers and footers. If you open a Master document and it displays with tiny lock icons, double-click a lock icon to open that subdocument in Normal view, ready for editing.

To add new subdocuments to an existing Master document, open the Master, then choose View, Master Document. Click the Insert Subdocument button on the Master Document toolbar. The Insert Subdocument dialog box appears. Choose the document to insert, then click Open. Once inserted, it becomes a part of the Master document.

To delete text from a Master subdocument without deleting text from the original subdocument, open the Master document. Click in the subdocument section you want to modify, then click the Remove Subdocument button on the Master Document toolbar. This disassociates the subdocument's text from the external subdocument. Modify the text. Save the Master document. Your changes will not affect the original subdocument. ■

by Carol S. Holzberg, Ph.D.

Microsoft Excel 97

Validating Your Data

97 FOR WIN95



SPREADSHEETS

Are you looking for a quick and easy way to find out which cells in a worksheet conform to the bottom line? Maybe you are looking for cells that may include errors because they contain values that are either too high or too low. Excel can help in this situation with its data validation feature. You can use data validation to have Excel mark all the cells that contain values outside the limits you specify, such as production levels that are too low or cost overruns. Additionally, you can use data validation to troubleshoot possible erroneous formulas—those with results that are different from what you expected.

To use this feature, first select the cells you want to analyze; then choose Validation from the Data menu to display the Data Validation dialog box. Use the Settings tab to specify Validation Criteria, which are the constraints you want to put on the cells. To do this, click the arrow in the Allow field. Next, choose the type of entry you will accept in the cell, such as a decimal or a whole number, from the drop-down list. Then open the Data drop-down list and choose a comparison operation, such as between, greater than, and less than. Finally, enter the lowest and highest values you will allow in the Minimum and Maximum (or Value) text boxes. When you finish, click OK to close the Data Validation dialog box.

After you specify the criteria, you need to apply it to your worksheet. Choose Auditing, Show Auditing Toolbar from the Tools menu to activate the Auditing toolbar; then click its Circle Invalid Data button. Excel places a red circle around all the cells that contain values other than the criteria you set. You can quickly clear these circles by clicking the Clear Validation Circles button on the Auditing toolbar.

You also can double-check what data restrictions are in effect for a cell by selecting it and then choosing Validation from the Data menu. Finally, to clear your settings, select the cells and then display the Data

Validation dialog box. Click the Clear All button; then click OK.

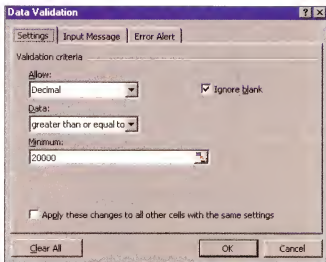
■ **Make A Message.** Along with flagging cells that may contain incorrect information, data validation includes two ways to guide (or restrict) user input. Excel can display a message whenever a cell is selected or show an error message box when a user tries to enter data that doesn't conform to the set limits.

The first method—specifying an input message—helps the user enter correct information up-front by offering helpful hints on what data is allowed. To set up an input message, select the cells to which you want to add the message and then choose Validation from the Data menu. Set (or reset) your criteria and then click the Input Message tab. Type a message in the Title and Input Message text box areas; then click OK. To view the message, select any cell to which you added an input message.

Additionally, (or instead of) you can have Excel display a customized message box if someone tries to enter data in a cell that doesn't conform to the current data restrictions. This is an *error alert* message. To set up this type of message, specify your criteria as usual in the Validation dialog box and then click the Error Alert tab. Enter the text you want to appear in the title bar of the message box. Next, enter the message you want to display (such as, "You must enter a number between 1,000 and 10,000") in the Error Message text area—up to 255 words in length. You also can click the Style drop-down list arrow and choose a style—Information, Warning, or Stop. These styles differ in what type of message box appears as well as whether you're allowed to

enter data that doesn't conform to the specifications. For example, the Information and Warning styles allow you to enter values different from the guidelines (but warn you about them), whereas the Stop style won't let you enter text that doesn't fit the criteria.

When you finish setting up your Error Alert message, click OK to close the Data



Use Microsoft Excel's data validation and the Auditing toolbar buttons to identify potential problem cells.

Validation box. To test the message, click in a cell that includes data restrictions, then deliberately type information that doesn't conform to the restrictions. When you press ENTER the message box appears.

When you finish using the data validation feature, you can document any problems you find with a cell by selecting it and then clicking the New Comment button on the Auditing toolbar. Enter text in the comment text box; then click outside it. To display the comment, rest your mouse pointer over the red triangle in the cell. To remove the comment, select the cell and then choose Clear, Comments from the Edit menu.

With your data validation tools, you can analyze your worksheets—and produce more error-free ones as well. ■

by Linda Bird

He e-mailed the file an hour ago...

He's waiting for an answer.

The problem is, you can't read it.

Open and read any file, whether you have the program or not.
Only with e-ttachment Opener.

At one time or another we've all received dozens of pages of e-mail garbage text or been unable to open an attachment. But starting today you can open and read every e-mail attachment you receive with e-ttachment Opener.*

e-ttachment Opener also enhances your e-mail program so it can decode, decompress, view and print files without needing a copy of the program that created them.

Make sure your e-mail works with you, not against you. Call:

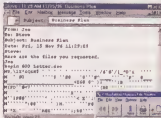
1-800-733-0030 ext. 107

or visit our web site:

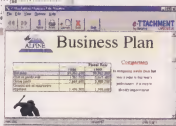
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Overclocking CPUs

Part 2: How To Speed Up The Chip



Power without the price. It's the Holy Grail of computing performance. Every user stays on the lookout for ways to squeeze more speed and power from the system without upgrading any components. The ideal tweak would be flipping a switch to speed up the engine of the PC: the central processing unit (CPU). A solution so simple may be unrealistic, but the **overclocking** process promises improvements almost that easy. This trick for advanced users takes advantage of the fact that many CPUs run slower than their top speed. Tell a CPU to run faster, and, in many cases, it will.

Last month we examined the theory behind overclocking, including a look at what it is, how it works, and its pros and cons. This month, we look at the more practical side of overclocking for those of you who decide to try it.

Overclocking is, by its nature, simple but tricky. It is simple in theory to set up a PC so it is overclocked, but it's often tricky to get it to work properly. Since overclocking means running hardware over its officially supported speed, there are a number of variables to deal with—and no “official” channels that offer support. It's living on the wild side by PC hardware standards.

That said, this article should help if you want to overclock your PC. Due to space limitations, it does not cover every detail and every conceivable issue you may encounter while overclocking. You'll learn most of what you need to know by experience. The very essence of overclocking is experimentation.

As you work through the instructions here, you'll find the whole overclocking procedure is rather anticlimactic. You must do much advance preparation work, but the actual overclocking itself is simple and quick. This tempts many beginners to skip the essential preliminary steps (sometimes with the encouragement of “experts” who take much for granted). Don't make this mistake.

■ Know The Risks. Our first overclocking article explored in detail the background information every computer owner must know before considering overclocking. We strongly recommend reading that article before reading this one. It provides critical information you need to decide whether overclocking is right for you.

Overclocking makes no sense if you're trying it on a machine that contains important data, is used to run a business, or has any other critical role. If you can't afford to lose the system, you simply can't afford to try overclocking it. If you feel you must overclock because the system is too slow to perform whatever key role it serves for you, you should instead investigate less experimental ways of improving performance.

Overclocking for educational purposes is a good way to learn about your PC and how it

operates. It's also useful in getting an extra kick of performance from systems used heavily for action games and other demanding, but not critical, applications.

Finally, overclocking requires tweaking and changing hardware and software settings. Don't try it if you are uncomfortable doing this, or if you have a warranty that you would void by opening your computer.

We strongly emphasize that overclocking is an experimental procedure that causes hardware to run beyond its rated specifications. It carries with it the risk of unrecoverable data loss, system instability, and the potential for permanent damage to equipment. This article is for informational purposes only and is not an endorsement of overclocking. If you decide to experiment with overclocking, you do so at your own risk.

■ Before You Start.

Take a few preparatory actions before you reach for your screwdriver.

Back it up. Unless you're starting with a completely blank system, you should back up your system's data. This is critical when overclocking because data integrity problems are common due to subtle errors introduced by running a system on the edge. The last backup you make before overclocking should be segregated from any subsequent backups for at least a month. Corruption due to overclocking often accumulates over time, so you don't want to keep this backup for only a few days, conclude everything is all right, and get caught off-guard.

Give your system a checkup. Be certain your PC is working properly before you begin; if it isn't, overclocking will surely make it worse. Never overclock a system experiencing any sort of hardware or system problem. If

you do, you'll never be able to troubleshoot it properly.

One area deserves special mention: Check the heat level inside your PC, and especially, the temperature of your processor. If you have heating problems already, you have a slim chance of successfully overclocking.

Cooling tricks such as fans, heat sinks, and thermal grease may offer some relief. You want to be able to compare the heat level of the CPU before and after overclocking, so determine it now for starters. (See below for instructions.)

Collect your materials. Overclocking requires few tools and materials. In most cases you'll need a Phillips screwdriver to open your case and a pair of needle-nose pliers to grasp and move jumpers on your motherboard. You may also need white thermal grease (available at Radio Shack in North America) to improve cooling of the CPU.

You also should find the manual for your **motherboard** (the main circuit board inside your PC) or system.

Benchmark your system. It's a good idea to run one of the more popular system

benchmarks on your system right before you begin the overclocking process. This will prove your system is running properly (since proper benchmark programs give the system a good workout) and provide a basis for comparison so you can see how much the procedure improves your performance. (See "Is Your PC Up To Par?" in our June 1998 issue for information on benchmark software.)

How Far Can You Go? Once you decide to overclock, you must decide *how* you're going to do it and by how much. The millions of different systems out there each have special limitations on the ways they can

be overclocked. Add the natural variability in the tolerances of the parts themselves, and no two overclocking attempts are exactly alike.

The two basic ways to overclock a system are CPU overclocking and system bus overclocking. (The article last month discusses both of these in detail, with examples.) Overclocking the **system bus** (the main data highway inside the PC) generally results in the CPU, motherboard, and many other components being overclocked, which raises both performance and the risk of failure. In either case, you must decide how far to try to "push" the system.

In general, it's relatively easy to slightly overclock a system, and it grows disproportionately more difficult as you become more aggressive. For example, overclocking a particular type of 150 megahertz (MHz) Pentium CPU to 166MHz may succeed 50% of the time, but if you try to push to 200MHz, you may encounter a success rate lower than 10%. This represents the normal distribution of the tolerances in the underlying hardware. If you do want to aggressively overclock, do it in small steps. Start by getting the system working at 166MHz. Then try 200MHz. It's easier to troubleshoot problems this way.

Getting too greedy is asking for trouble of the worst kind. There are stories of people who try overclocking a 90MHz Pentium CPU to 200MHz. It will (almost) never work, as there just isn't enough margin in the chip to handle this, and you greatly increase the risk of damaging the CPU. While outright damage is rare, it's far more likely to happen when pulling this sort of stunt.

If you decide to overclock the system bus, decide how far you'll push this process, as well. Common bus overclocks for standard 60MHz and 66MHz systems are 75MHz and 83MHz. Note that increasing a system from 60MHz to 66MHz is not considered system bus overclocking because all components are rated to run at 66MHz. In a 100MHz Pentium II system, system bus speeds up to 100MHz are supported by the CPU (if using the right kind), motherboard, and **chipset** (the core logic chips that control the motherboard).

Know Your System. The actual mechanics of overclocking the system start with determining the capabilities and limitations of your system and how to change its settings. Start by examining your motherboard manual. Some systems have a manual for the overall system and not specifically the motherboard,



If you have heating problems, you have a slim chance of successfully overclocking. Cooling tricks such as fans and heat sinks may offer some relief.



but in both cases you should be able to find the correct information. You may, however, need to do research on your system; the Internet can be a great source of help here.

Here is the information to find:

Motherboard clock speed limitations.

This represents your upper boundary in CPU overclocking (unless you replace the motherboard, but then overclocking isn't really saving you much money, is it?). Most newer Pentium-class motherboards, for example, top out at 200MHz or 233MHz. Pentium II motherboards go much higher. If your CPU is already the fastest one supported by the motherboard, you can overclock only if the motherboard will allow system bus overclocking. Otherwise, you're out of luck.

Motherboard bus speed limitations.

The motherboard dictates whether you can overclock the system bus to 75MHz, 83MHz, or even higher. The motherboard manual normally contains this information, but there are some cases in which this capability is undocumented.

Jumper functions and locations. The motherboard manual should tell you where to look on the motherboard for the small switches called **jumper**s that you'll change to overclock. Of particular interest are those that control CPU speed. Sometimes these jumpers are listed separately as "bus speed" and "CPU multiplier." You need to know how the jumpers must be set to change to the higher speed you want. Note that some newer motherboards are "jumperless." These let you change the speed of the CPU from the on-screen Basic Input/Output System (BIOS) setup program, no screwdriver required.

Brand and type of other key components. This information isn't strictly required for overclocking, but you may need it to get help if you have problems with your effort. This is especially true in system bus overclocking, since this can affect these other components. The most important one is your system memory type and speed.

■ **Make Your Move.** Now we're done with the preamble and ready to get to work. Here is how to overclock a conventional PC with jumpers on the motherboard:

SAVE YOUR WORK, power down, unplug the system, and disconnect the power cord from the PC.

CAREFULLY OPEN the system case. You'll probably need a medium-sized Phillips screwdriver.

GROUND YOURSELF by carefully touching the metal interior of the system case. This should remove any static electricity that might be present. It's better to use a proper grounding wrist strap, but very few people have these.

FIND THE JUMPERS that control the system bus speed and/or CPU speed on the motherboard.

USING A PAIR OF NEEDLE-NOSE PLIERS, carefully move any jumpers from their current positions to the new positions required to change the hardware settings to overclock the CPU.

CHECK THE CHANGES you just made to ensure they're correct. Accidents in setting jumpers can lead to catastrophic results.

REPLACE THE CASE. Some people leave the case off to make it easier to change jumper settings again or monitor the CPU's heat output. If you do turn the PC back on with the cover off, be very careful when around the open computer. You will need to replace the case later.

CONNECT THE POWER CORD to the PC and plug in the system.

Jumperless PCs simplify the process since you don't need to open the case.

SAVE YOUR WORK and reboot (restart) the PC.

PRESS THE APPROPRIATE SET OF KEYSTROKES to enter the system BIOS setup program. On most modern systems you press the DEL or F2 keys to enter setup. When you first turn on your PC you may see a message telling you which key or keys you can press to access the setup program.

MOVE TO THE APPROPRIATE MENU in the BIOS program for changing hardware settings.

On some motherboards this is labeled "CPU Soft Menu."

CHANGE the appropriate CPU and system bus speed settings.

CHECK THE CHANGES you just made to ensure that they are correct. While most jumperless motherboards are designed to prevent damaging a CPU even from totally wrong settings, it's better to play it safe.

■ **Did It Work?** The first test of your newly overclocked PC is to turn the machine on and see whether it boots up properly. If you turned the machine off to change jumpers, turn it on now. If you have a jumperless PC and have just changed settings, exit the BIOS setup program. Your system should reboot.

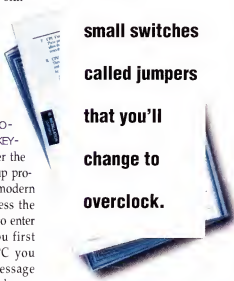
If the PC doesn't boot up, then either your system cannot be overclocked to the level you have attempted, or there was some sort of problem with how you did it. See below for some common tips to help debug overclocking problems. If the system boots up, there's a good chance that the overclocking worked successfully, though a successful boot up is just the first step.

The next test is to start Windows, preferably either Windows 95 or Windows NT. These 32-bit versions of Windows "exercise" the hardware much more than DOS or Windows 3.1 does. Again, if Windows crashes or locks up, there may still be a way to correct the problem; see the next section.

If Windows works, try running any intensive applications that you use regularly to verify that they still work properly. If you ran a comprehensive benchmark before

you overclocked, now is a good time to run it again. If the system passes, you're in good shape. You also can compare this number to

The
motherboard
manual
should tell you
where to look
for the
small switches
called jumpers
that you'll
change to
overclock.



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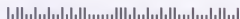
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Thank You!

the benchmark score your system earned before you changed the system to see your performance gain. If there's no improvement, your CPU probably is speed-locked and can not have its multiplier changed.

If everything you run seems to work properly, and the system seems slightly faster, you have *probably* overclocked successfully. Keep an eye on the system for the next few weeks because problems sometimes appear days or weeks down the road. If you suspect a problem has developed from overclocking, drop the speed of the system back to "normal" temporarily and see if the problem goes away.

■ Troubleshooting Problems.

Sometimes overclocking works easily, but when it doesn't, it can be very difficult to troubleshoot. Worse, sometimes it can cause the system to behave in a strange manner that may seem totally unrelated to the overclocking. Be slow to write off strange system behavior as something that couldn't possibly be related to overclocking. If the system didn't do it before, and it does now, overclocking probably caused the problem. Even problems that appear to be solely a function of software—such as application crashes or Windows 95 Registry corruption—can result from overclocking.

If the system won't boot up at all and nothing appears on-screen, you probably can't get the system working at this speed even with every known trick. You'll have to set the system back or try a more conservative approach. Troubleshooting tips generally help most with systems that will boot but are unstable.

In some cases a little effort can turn a failed overclocking effort to a success. The following collection of tips and tricks should assist you with common overclocking problems:

Keep It Cool. Heat is the biggest enemy of successful overclocking and system stability in general. If you experience glitches or lockups, make sure the CPU is being properly cooled. The correct way to do this is to leave the system running for at least 20 minutes (with the cover on, the way it normally is during operation). Then turn it off, remove the case, ground yourself by touching the case metal, and touch the edge of the processor. It should be warm but not so hot that you must pull back your finger after less than five seconds.

If it's running hot, you'll need to explore various options for improving cooling. One is to get a larger **heat sink** with a fan. The heat sink is a piece of aluminum, often with a fan

on top of it, that is attached to the CPU to help cool it better. You also should make sure there is a **thermal heat sink compound** between the CPU and the heat sink, since this will greatly improve the heat sink's ability to cool the CPU by thermally "gluing" the two together. Heat sink compound is a white creamy substance. Basically, if the heat sink can be detached easily from the processor and nothing is between them, you may need heat sink compound.

Hard-Wired Limitations. If you change your jumper settings and notice that the CPU still behaves exactly as before, and your benchmark scores haven't changed, there are two possibilities. You could have changed the wrong jumpers, or you may have a processor that has been modified to disable overclocking. Intel started doing this in 1997 to combat both overclocking and **remarking** (where unscrupulous vendors change the markings on a slower chip to trick people into thinking it is a faster one, causing them to inadvertently overclock). If you have one of these speed-limited chips, your options are basically limited to overclocking by increasing the speed of the system bus.

Back Off. If you're trying aggressive overclocking that isn't working, back off and try something more conservative first. Also, if you're trying to overclock both the system bus and CPU, try just overclocking the CPU first.

Be Wary Of Peripherals. If you're trying to overclock the system bus on a 66MHz system to 75MHz or 83MHz, then you're probably overlocking the chipset, cache, memory, hard drive controller, and every other device

in your PC. There are some peripherals (including hard drives) that just don't tolerate increases in their operating speeds.

Change BIOS Settings.

You may be able to improve the reliability of an overclocked system by changing the system timing within the BIOS setup program. In particular, overclocking works better on many systems if you slow down the timing that controls access to the system memory. Just remember that every time you do this, you slow the system down slightly, which gives back part of the performance gain you're working for.

Call In The Cavalry.

Thousands of PC hobbyists on the Internet like to overclock, and it is likely someone has tried what you are doing before. Post a message to a Web site chat room or to a Usenet newsgroup describing the problem in detail. Someone may have a suggestion for you. Just remember

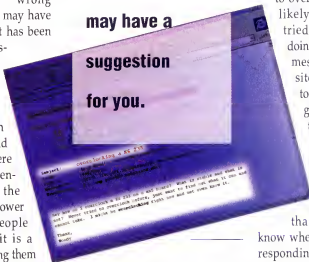
that you don't know whether the people responding to you really

know what they're talking about.

Your smartest move may be knowing when to give up. Not every chip can be overclocked to the same degree, and many can't at all. Some people spend a full week and \$50 on special cooling rigs trying to squeeze an extra 10% of performance from their systems. Unless you're *really* determined to make this work at all costs, sometimes you're better off giving up and improving performance in ways that better use your time and money. ■

by Charles M. Kozierok

Thousands
of hobbyists
on the Internet
like to overclock.
Post a message
to a newsgroup.
Someone
may have a
suggestion
for you.



Diskette Drives



Project Overview



Tools

Screwdriver



Time

15 to 30 minutes



Cost

\$20 - \$75 for a 3.5-inch internal diskette drive; \$160 for external LS-120 SuperDisk drive



Benefits

Cheap storage solution, portable and practical. LS-120 drives let you read and write to both 1.44MB diskettes and 120MB LS-120 diskettes



Leading Companies

IBM, Mitsumi, Teac, Mitsubishi

We know what you are thinking, "Hey! This is supposed to be the upgrading section. Why are you bothering to write about 3.5-inch diskette drives?" Patience, my friend.

We aren't saying that 3.5-inch drives are going to be around forever. Many new high-end computers, such as those with Pentium II processors, already carry the drives that will probably replace the diskette drives. These PCs include Zip or digital video disk, read-only memory (DVD-ROM) drives. Compact Disc-Recordable (CD-R) drives are also starting to filter into the marketplace. These new drives are intruding on the 3.5-inch drives turf because one disc from the other drives can store more information than a stack of 3.5-inch diskettes.

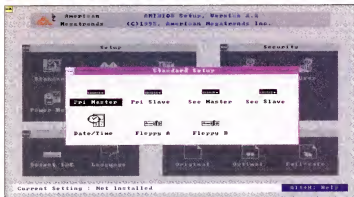
But these peripherals are only now making their way into the mainstream. They probably won't match the 3.5-inch drive's popularity for a few more years. Clearly the 3.5-inch diskette drive is going to be around for a while, even though its glory days are fading.

The near-universal availability of 3.5-inch drives helps keep them alive. And why not?

The 3.5-inch drives are clearly practical. There's still no cheaper way to physically transfer or back up files. You could send the information on a Zip disk if your friend or co-worker has a Zip drive, but the disks cost about \$10 each. You know if you hand that Zip disk to your co-worker, you'll never see it again. Besides, it's not worth sacrificing an entire 100 megabyte (MB) disk for 1MB of files.

On the other hand, nearly everyone who has a PC has a 3.5-inch diskette drive. And the diskettes practically fall from the sky like raindrops. You can pick up a couple of loads for about the same price as a can of soda and a big sandwich. Who cares if your friend uses your diskette as a coaster? It only cost 60 cents.

We're not telling you to forget getting a high-volume storage peripheral. They clobber 3.5-inch diskettes at tasks such as large-scale backups, transporting entire sets of programs, and storing large graphics or multimedia files. But clearly, if you have a few hundred kilobytes of files you need to hand off to



Current BIOS Setup screens make it fairly easy to adjust system settings with graphical interfaces that allow you to make changes by pointing and clicking.

someone or shuttle between PCs, diskettes are a great option.

Sometimes it makes sense to add another diskette drive to your machine. This simplifies copying between two diskettes. Perhaps your 3-year-old tried to toast a Pop-Tart in your 3.5-inch diskette drive and, well, it just hasn't been the same since. These drives are pretty reliable, but they do break down. In any case, if your diskette drive stops working or you simply want to add another one, upgrading is worth the effort.

You can find a 3.5-inch diskette drive for less than \$50, and the installation is easy. But don't expect to find one at your local Best Buy or CompUSA. Try a local second-hand computer store. If that fails, you can find one on the Internet. Try visiting ICS at <http://www.ics-driveshop.com> or M. Farris & Associates at <http://www.mfarris.com/index.html>.

■ **Follow The Process.** Installing the diskette drive should be a fairly painless process, but it's more involved than simply popping a card into an expansion slot inside the computer's case.

The first step is to turn off your computer. Then, remove the cover of the computer and ground yourself by touching the metal frame of the computer.

If you're replacing your current 3.5-inch diskette drive, locate it inside your computer. It should be inside a metal bracket. It will be attached to two cables. One is the ribbon cable (gray with a red stripe along the edge), which transfers data from the drive to the motherboard, your PC's main circuit board. The other cable, the power source, connects the drive to your power supply. The power source cable, which should be white, will have several wires

there. So unscrew the bracket from the case. You should be able to pull out the bracket, and anything attached to it, without trouble.

Next, unscrew the drive from the bracket. After removing the screws, slide the drive out of the bracket and insert the new drive. There will be several holes in each side of the diskette drive. Line these up with the holes in the bracket, so the new drive is in the same position as the previous drive. If you misalign the drive, it may stick out too far or not far enough. Attach the drive to the bracket with the screws.

Before you reattach the bracket to the computer case, you'll want to connect the cables to the drive. It's easier to do it now than to wait until the bracket is reattached. Plug the ribbon cable into the connection on the back

of the new drive. You'll notice that the ribbon cable has a stripe along one side. Line the red stripe up with the left bottom pin (pin 1) on the drive's connector. Now attach the power supply cable to the power supply connection on the back of the drive.

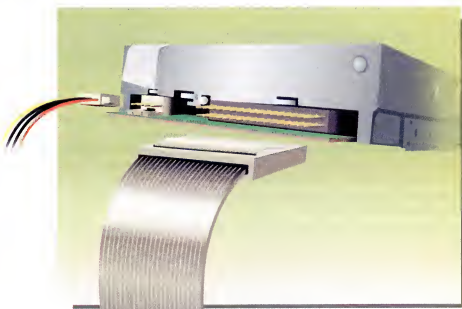
You will probably find that it is easier to detach the entire bracket from the computer case and then remove the diskette drive. Trying to remove the drive without removing the bracket can be complicated. There's little room to maneuver around in

the new drive. You'll notice that the ribbon cable has a stripe along one side. Line the red stripe up with the left bottom pin (pin 1) on the drive's connector. Now attach the power supply cable to the power supply connection on the back of the drive.

Once the cables are securely in place, it's time to reattach the bracket. Make sure the diskette drive fits properly in its slot as you move the bracket into position. If the drive sticks out too far or not far enough, pull out the bracket, and adjust the position of the drive. Screw the bracket into place, and double-check the cables to make sure their attachment is secure. After that, pop the lid back on the computer.

The physical part of the installation is complete, but now you must make sure your computer is ready to use the drive. Your computer's **Basic Input/Output System (BIOS)** is in charge of that task. You'll have to enter the Setup screen to check the BIOS settings for your diskette drive. You can do this when you first start your computer. Usually, this involves pressing the F1 or F2 key. Look for a phrase such as "Press (x) Key If You Want To Run Setup," where x is the key or key combination you use to access Setup.

If you're replacing a diskette drive, you'll probably find that the following settings are already in place, so your computer should be able to use the new drive without your help. Still, you should check the settings, just to make sure.



You'll find it's easier to connect the power supply and ribbon cable if you remove the drive from the bracket.

Enter the Setup screen. Somewhere in there (hopefully on the first screen), you'll see a section that let you change your diskette options. Open that section and make sure Diskette A: is set to 1.44MB 3.5-inch. Diskette A: is the default drive letter, so you'll want to use that for the installed drive. Now make sure your computer will read the A: drive before it reads the hard drive (C:) during startup. Check it under Boot Options. You want your computer to check the A: drive first so that if some kind of hard drive malfunction creates a problem with starting up your computer, you can pop a bootable diskette in the A: drive.

After you check the settings and make any necessary changes, save the settings and exit the Setup screen. Your computer will finish starting up, and you'll be ready to use the new drive.

■ **We Want More.** Now you're clear on the details of the venerable 3.5-inch diskette drive and its installation process. But we know that you want more—more storage and more flexibility. Let us introduce you to the LS-120 drive. This device is a 3.5-inch diskette drive with 120MB of attitude. LS-120 diskettes can store up to 120MB—about 83 times the storage of a single 1.44MB diskette. This makes them ideal for backups and storing larger files, such as graphics libraries. But the real bonus is that LS-120 drives can read and write to 1.44MB diskettes. You get the extra storage space you need, and you don't have to throw your old 1.44MB diskettes in the trash. More importantly, you still can share information easily with folks saving files on 1.44MB diskettes.

Of course, this higher-end technology carries a higher price tag. Imation's SuperDisk, an external LS-120 drive that plugs into your PC's parallel port, has an estimated street price of about \$199. We've seen them advertised for about \$155, however, making them competitive with the price of an external Zip drive. LS-120 diskettes hold 20MB more than Zip disks, yet they retail for about the same price, roughly \$150 for three disks. Zip drives transfer data faster than LS-120 drives, but they don't read 1.44MB diskettes.

LS-120 diskettes are very similar to 1.44MB diskettes, which is why an LS-120 drive can read both kinds. The major difference, however, is that LS-120 diskettes hold more tracks than conventional diskettes (tracks are the information storage area on a diskette). LS-120 diskettes contain about 1,736 tracks per side, compared to 80 per side for a 1.44MB diskette.

Other than that, LS-120 diskettes look and feel like a regular 1.44MB diskette. A 3.5-inch diskette drive, however, can't read or write to LS-120 diskettes.

Another advantage LS-120 drives hold over 3.5-inch diskette drives is their speed. LS-120 drives transfer data at a rate of about 290 kilobytes per second (KBps), whereas 3.5-inch diskette drives transfer data at about 55KBps. The LS-120's higher rate really speeds up transferring or copying files.

Some computer manufacturers, such as Compaq and Gateway, offer internal LS-120 drives as an option on some new PCs. The drives increases the PC's price, but we like the flexibility of the LS-120.

If you aren't planning on buying a new PC anytime soon, you still can enjoy the benefits of an LS-120 drive. We recommend Imation's SuperDisk, an external parallel port LS-120 drive, because of its easy installation.

■ **A Super Installation.** The first step, as always, is shutting down your computer. Next, find the parallel port on the back of your system (it's the one into which you plug your printer). Attach one end of the included parallel port cable to the parallel port and the other end to the SuperDisk drive. Then plug your printer into the plug on the back of the LS-120 drive. (Note that you can't use the printer and LS-120 drive simultaneously in this setup.) Plug the AC adapter into the SuperDisk, and plug the other end into a wall socket. Now, you just have to install the software. It couldn't be easier. You don't even have to set a drive letter for the SuperDisk—the software will do it for you.

Many portable storage options are available these days, but you should stick with a classic, at least for now. You'll want your computer to be able to read and write to 1.44MB diskettes, even if you use another storage solution for backups. There are simply too many of those old diskettes still floating around to give up on them. ■

by Michael Sweet

For More Information:

SuperDisk
\$199
Imation
(800) 854-0033
(612) 704-4000
<http://www.imation.com>

Terms to Know

Basic Input/Output System (BIOS)—A system's BIOS controls the startup process and other basic functions of your computer, such as control over diskette drives, keyboards, and displays.

disk capacity—The amount of information a diskette holds, which can be measured in kilobytes or megabytes. Larger types of storage media, such as hard drives, may be measured in gigabytes (GB).

diskette—A hard plastic transportable storage medium. There are two formats for 3.5-inch diskettes—double-density, which can store up to 720 kilobytes (KB) of information, and the more common high-density, which can store up to 1.44 megabytes (MB) of information.

diskette drive—A peripheral storage device used to record data to and retrieve data from diskettes. The diskette drive usually has a smaller storage capacity than a hard drive or a CD-ROM drive.

tracks—Rings recorded on a diskette in which data is stored. 720KB diskettes contain 80 tracks per side, 1.44MB diskettes contain 160 tracks per side, and LS-120 diskettes contain 1,736 tracks per side.

transfer rate—The speed at which data passes from one location to another. This information is usually displayed in units per second, for example kilobytes per second (KBps) or megabytes per second (MBps). Three-and-a-half-inch diskette drives tend to have lower data transfer rates, about 55KBps. LS-120 drives have much faster transfer rates, about 290KBps.

Juice Up Your Portable

Alternate Power Supplies For Mobile Computers

While portable computers have improved dramatically in most areas, such as screens, processors, and input devices, one department has gone downhill in recent years. For some reason, it seems the batteries of today lack the juice to keep these fancy machines running for any substantial amount of time. That's extremely frustrating to portable computer users.

Part of the power problem lies in all of those new features. "Notebooks aren't just for note taking anymore," says Ken Hawk, chief executive officer at 1-800-Batteries. "They're basically for everything, and people expect the same functionality as they have at their desktop computers. When you pack all of that power into a machine—a 233 megahertz (MHz) processor, CD-ROM, or Digital Video Disc (DVD), a big, active-matrix screen, and a wireless modem—it really sucks a lot of power." (DVD drives read high-capacity discs that look like CD-ROMs but hold more information.) "The gap between how much power a battery can deliver and how much power the laptop needs is getting bigger," he says.

Unfortunately, battery manufacturers have made no matching leaps forward in battery technology (at least not yet). That means that with the addition of every new portable PC feature you can expect battery run times, and the patience of users, to grow shorter.

■ And Now, The Good News.

Fortunately the options for supplementing the run times of underachieving batteries are growing faster than battery life itself. Of course, these options involve spending more money, and maybe carrying some extra equipment, but each will help your portable



computer run longer. It's up to you to choose which best suits your needs.

■ **Buy A Second Battery.** A well-maintained battery provides longer run times. Buying a second battery is one approach to a healthy battery, and doubling the average run time of your computer. That way you can run one battery all the way down (which is good for it) and then pop in your standby battery. Add a battery charger to the mix, and you have it even better. "One (battery) can always be charging while you're using the other one if you have an external charger," Hawk says.

Using a separate battery charger also helps increase the productivity and prolong the life of

your original battery. When you charge a battery inside your portable computer it becomes hot. The heat builds up inside the computer and over time can dry out the chemicals and plates between the cells in the battery. An external charger leaves the battery open to the air, where the heat can dissipate better.

Port Inc., another company that manufactures and sells portable computer batteries and other accessories, offers a \$149.95 charger with an added bonus. It charges a battery faster than doing it inside your portable computer, but it also conditions the battery as it charges, says Kelly Keifer, company product manager for Port Inc. You can put two units in this dual bay device. "Within a period of about two hours it will take the batteries through the exercises required to fully discharge and charge them," Keifer says. "That helps to improve the life of the battery."

■ **Super Battery.** If messing with little wimpy portable computer batteries has you down, try toting more power. Hawk suggests the Portable Power Pack from 1-800-Batteries. This external unit is larger and heavier than a regular portable computer battery (10 x 7.2 x .86 inches and 3 pounds), but it can offer four to eight hours of run time in conjunction with your regular internal battery.

Hawk says the Portable Power Pack uses a new electrolyte technology similar to that of a car battery. It even includes a built-in fuel gauge designed to help you monitor exactly how much juice it has left.

The biggest drawback to this \$179 device is the 3 pounds it adds to the weight you're carrying. Of course, if it means completing a project instead of running out of power before you finish, it may be worth lugging around the extra weight.

■ Plug In On The Move. Where do busy portable computer owners use their PCs most outside the office? Probably in a vehicle. Thus, your best portable power source may be the one that helps power your car. That's the premise behind special adapters, offered by both the companies we talked to, that draw power from an automobile's cigarette lighter socket.

The advantages here are obvious. Whether you're on your way to work, driving to the airport, or rushing between meetings, you can plug in to the built-in cigarette lighter socket in your car and top off your battery's charge. (Note that older nickel-cadmium batteries should be fully discharged before charging.) If you need to do some work at a job site or while waiting in a parking lot, these adapters will provide power without draining your PC's battery.

The catch with these devices is you can't buy just any cigarette lighter adapter and plug it in to your PC—unless you're willing to risk damaging your expensive computer. "The 12-volt (cigarette lighter) outlet in your automobile produces a set voltage, and each notebook runs off a different voltage," Hawk says. "So we provide a wide range of automobile adapters that convert the 12 volts in your car, filter it, protect against surges, and then output the exact voltage, current, and polarity through the connector to an individual notebook." That

way the power that reaches your portable computer from the cigarette lighter matches what you receive after the power from a wall outlet runs through your computer's AC adapter.

Cars aren't the only place where busy portable computer users can plug in these devices. Hawk says the \$99 Auto/Empower Adapters from his company also work with a new power socket standard showing up in airplanes. "Basically the airlines got together and said 'let's have one connector on our planes,' so they came up with a standard 15-volt, 4-pin connector," he says. Currently the socket is in the first class seats of airlines such as United and America Airlines, and they'll eventually show up in the business and coach classes too.

■ Sun Power. One of the most interesting products for prolonging battery life is the KISS Mercury II solar-panel charger. Hawk says the charger supplements the charge of a battery, but can't power a system by itself.

"This unit is basically a way to assist your battery," Hawk says. "It doesn't produce enough power to actually run your computer, but if you have a fully charged battery, it produces enough to assist the battery."

The Mercury II isn't for everybody, he says. But people such as field researchers and

engineers who use their portable computers outdoors should be able to put it to good use.

■ Recycle. Finally, in the spirit of the clean, renewable energy supply solar power represents, we need to point out that no matter how frustrated you become with your portable computer battery, you should never throw it in the trash. Batteries contain toxic chemicals that can cause harm if not disposed of properly. Both 1-800-Batteries and Port offer battery recycling (just send them your dead ones). It's free, so there's really no excuse for not doing it. ■

by Tom Mainelli

For More Information:

1-800-Batteries
(800) 228-8374
(702) 746-6140
<http://www.800batteries.com>

Port Inc.
(800) 242-3133
(203) 852-1102
<http://www.port.com>

Solar-Powered Computing

Testing the KISS Mercury II solar panel battery charger proved challenging. It wasn't because the device—which 1-800-Batteries sells for \$339—didn't work. To the contrary, it's a well-built unit that easily installs (just plug in your auto power cord). It was, instead, a problem with our power source: No sunshine.

That's a hard problem to solve when you're talking about a solar-powered charger. It won't run on office light (it's too weak). So no sunshine equals no solar power. It's a simple equation that a potential buyer should consider before making a purchase. If gray skies are common where you work, this isn't the product for you.



Eventually the sun did appear, however, and we set up our solar-powered system on a chair outside. And it did recharge our dead battery—a little. We only gave it about three hours, and it takes much longer to gain a useable charge. If you have a charged battery, and you're working in sunlight, the device will give it a boost, keeping it running longer than normal. You cannot, however, use the solar charger to run your portable computer sans the battery.

If you're lucky enough to work on your portable computer outside much of the time,

and you've grown tired of lugging around multiple batteries, this may be the product for you. □

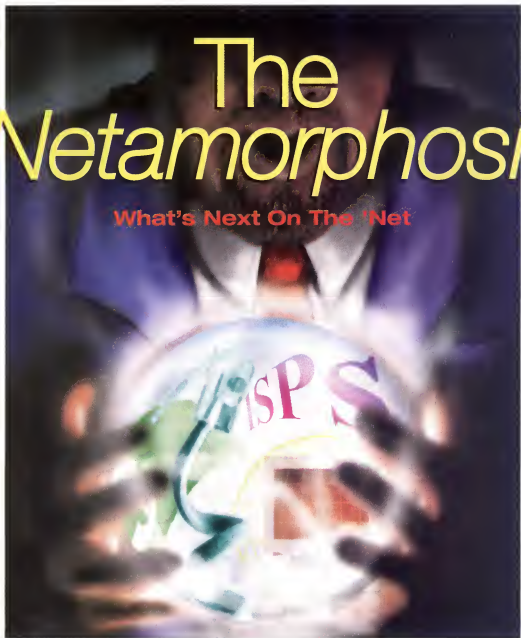
For More Information:

KISS Mercury II
KISS
\$399
(800) 327-6882
(406) 442-3434
<http://wildwestweb.com>



The 'Netamorphosis

What's Next On The 'Net



Jason Coar

While compiling our lists of Internet predictions, we felt a little like Nostradamus, etching down the future for the perusal of the next generation of 'Net users. But when we started writing about possible changes for the Internet, we felt more like Geraldo Rivera on the verge of opening Capone's vaulted vault. After all, no one knows for sure what the coming months and years will bring for this still-fledgling network.

That's the bane and beauty of attempting to map the future path of the Internet and its World Wide Web. It's hard to get any predictions right, but nobody seems too disappointed when you're way off. For example, at a recent computer convention (yeah, the one where Windows 98 crashed) Bill Gates addressed the issue of **bandwidth**, or a 'Net

connection's capacity for transmitting data. He said most people, even five years from now, will probably still be connecting to the Internet over bandwidth-challenged phone lines. At the same convention, William Esrey, the chairperson and CEO of Sprint Communications, said that lack of bandwidth will soon be a non-issue.

If these big dogs can't agree where the 'Net is headed on an issue this large, it's anybody's guess. So to keep our predictions in perspective, we'll look at the 'Net's short-term future. We talked to a variety of industry leaders who gave us their takes on the 'Net's short-term future of about a year, then we took an educated stab at a few years beyond that. We definitely can't give you the exact future of the 'Net, but we'll give you a glimpse at some likely destinations for this information interstate.



Short term: Separate ISPs and online services. 56Kbps modems for everyone.

Long term: Unlimited access is still around, maybe for less money. Lines between ISPs and online services blur as ISPs provide content and other services. DSL and other methods provide ubiquitous high-speed access.

People connect to the 'Net via **Internet service providers (ISPs)** or **online services**, which have always been two different animals. ISPs simply provide your 'Net connection and then let you roam the Web on your own. Online services give you a connection and then provide content that complements your Web adventure. But as ISPs begin offering content, and online services provide low-priced connections, the lines between these two entities are becoming blurred.

Donna Rasmussen, director of marketing at the national ISP Sprynet, says ISPs will continue to offer even more content and additional services in the future. ISPs will be "just like your phone company, where instead of just getting basic service, you can get call waiting and call forwarding, and things like that," she says.

Sprynet is working with other companies to provide wireless E-mail retrieval and on-line backup services for their customers. Rasmussen sees this becoming more of a trend. "It's not enough just to say, we've got a great network. It's not enough to say, we're an easy-to-use, reliable service," she says. She says that you must have additional distinguishing features to compete within the industry and take care of extremely demanding customers. These customers do their research

and know specifically what they want, she says.

Look for ISPs to be the one-stop shopping centers for all your online needs in the coming months and years.

Price points. Most ISPs (and online services) charge a flat fee of \$19.95 per month for unlimited access to the Internet. Now there is a change underway for this de facto standard.

"People have started to tinker with the unlimited plan," Rasmussen says. "Some folks are choosing to charge a little bit more and still consider it unlimited." Other companies, however, are introducing a time limit and charging a per-hour charge for any usage over the limit.

America Online, the largest online service with more than 11 million members, recently raised its monthly unlimited rate to \$21.95. The ISP AT&T WorldNet announced that users can connect for only 150 hours a month at the \$19.95 rate before paying additional fees.

Rasmussen doesn't think these increases will become a trend. "In three to five years, I don't think the price points are going to move that dramatically. I think they may go down a little bit. But more importantly than that, the technology is going to get better and faster. If you're even still paying \$19.95 three years from now, you're going to get a lot more for that \$19.95."

Access speed. The International Telecommunications Union (ITU) recently decided to standardize 56 kilobits per second (Kbps) modems. Now ISPs are moving to the new V.90 standard. These modems cost little more than the previous 28.8Kbps and 33.6Kbps modems, but they download information around 50% faster than those units.

In the next year we'll see more users and ISPs moving over to 56Kbps modems. Beyond that, a technology called **Digital Subscriber Lines (DSL)** is poised to enter the access market. DSL can transfer data up to 50 times faster than 28.8Kbps modems, with little change on the consumer end. But until a standard is set and DSL modem prices drop (they currently cost several hundred dollars), ISPs and consumers will be reluctant to drive their cars down the DSL roadway.

"Like with V.90, we'll be a little more conservative and wait and see what the standard is," Rasmussen says of Sprynet's policy.



Short term: E-mail continues to rule as the communications method of choice.

Long term: The popularity of virtual chatting increases as users exchange video and audio as well as text.

The greatest appeal of the Internet is its ability to facilitate human interaction. Ironically, the users accused of being computer-addled introverts are often addicted to extroverted communication via the PC. From E-mail to chat rooms to newsgroups, there is never a shortage of talkative plugged-in folks.

Text-based. One reason for the popularity of E-mail and other forms of text communication is their universal ease of use and limited requirements. Anyone with almost any computer can send and receive E-mail messages. But as E-mail gets fancier and goes beyond text, the usability will drop for many people. It will be a while before the masses use multimedia communication.

"If you look at the different forms of communication that are popular on the Internet today, E-mail and others, they have a certain kind of use and utility that they deliver," says David Wilson, the vice president of marketing at the newsgroup search service DejaNews. "A lot of that is tied into the fact that it is actually text," he says.

Great multimedia or other advances actually can limit the utility and the usability, Wilson says. "In the case of discussion (such as in newsgroups), there's a real tangible benefit to putting your thoughts in writing, and putting them up, and having them remain and be durable. That's harder to do in other ways than text."

Virtual chat. This isn't to say there won't be significant multimedia enhancements to 'Net communication. Wilson says that they will be more evident in the instant messaging services where the conversation is one-on-one and happening in real time.

"Since you're talking to one person at a given time, I would think that things like Internet **telephony** (speaking to someone on the phone via a 'Net connection) would greatly impact it. What's the benefit of (text-based chatting) when you are able to talk to somebody or use a combination of video and telephone to talk to somebody and be able to see them?" he says.

It'll be a while before we have the bandwidth and the system power to hold virtual conversations, but they will come.

these services often return Web pages that are inappropriate or may contain false information.

Wilson wants to see some changes made in how search services work. "It's been a problem, and it's still a problem that when you do a search, it's like drinking out of a fire hose. You're still getting way too much stuff back," he says. "Even if you've weighted what you think is the better stuff toward the top, what is ever the point of bringing back more than a thousand search results? Nobody's ever going to get past the first hundred or so."

Wilson wants continued improvements made in the ability of search services to filter information and some standards set on how these sites search. Both are short-term goals.

Some long-term goals for search services should include improved search methods, such as effective natural language processing abilities and quality judgments. A **natural language** search lets a user enter a question in plain English. Computers have a hard time understanding such phrasing, so this probably won't be too accurate for quite a while. (For an example of a natural language search service, check out Ask Jeeves at <http://www.aj.com>).

Services could start examining the quality of search results soon. Wilson says. A rating system could rank Web sites or newsgroup posters according to things such as their reliability and clarity. But in order to do so, "you're going to need an editorial staff or you're going to have to depend on the community itself to do it for you. It remains to be seen if it can be successfully done, but it could be very useful."

Information delivery and retrieval. The last few years, push technology has been a major Internet buzzword. Basically, **push** means having information delivered to you, like from a television, instead of having to go out and get it yourself (**pull**). New versions of the two biggest Internet browsers, *Microsoft Internet Explorer* and *Netscape Navigator*, have built-in push capabilities. *PointCast*, one of the best-known information delivery services utilizing push, has continued to grow in the consumer market. Since push allows customizable filters, it is best suited for personalized information services, *PointCast's* goal, says Phil Carpenter, its senior marketing manager.

"I would say that (push) is the best mechanism for delivering the information," he says. "If that mechanism allows us to further target what you want to see as a viewer, then it's the right mechanism."

But *PointCast* has run into some problems with its bandwidth-hogging abilities. Many

companies have disallowed the service on their networks. *PointCast* has trimmed down the amount of bandwidth that its latest program (or **client**) uses and is working toward expanding its corporate user base. Still, the short-term future for push technology isn't the brightest. Few people are using the push capabilities of their browsers. In addition to ample bandwidth, these clients need a fast computer to see anything but sluggish data.

As push becomes more personalized, it will probably become more popular, but until then, most 'Net users are content to go out and "pull" the info they need.

Free content? How much of what we have access to on the 'Net will still be without a price tag next year or the year after that? Of course, there will always be free content on the Web (after all, people probably aren't going to pay to visit Bobby Joe's Web Page of Tips For Bare-handed Catfish Gutting). But there will be more and more sites that will charge visitors a fee for the content.

About a year ago, *The Wall Street Journal* started charging for access to its site, which had previously been free. Of course the site lost many subscribers, but it managed to build up enough online readership to make other sites think twice about giving access away.

Langley Steinert, the vice president of marketing for Viaweb, which makes a product that lets businesses create online stores, says he's changed his mind on the subject.

"Originally, I thought there's no way that they're going to get away with (charging for content) because everyone perceives that things on the Internet, at least content, should be free," he says. Now he thinks that price and convenience may convince users that it's worth it to pay for what they're getting.

"With... *The Wall Street Journal*, you can get the content cheaper (online), and it's more convenient," he says. And of course, it's more friendly to the environment.

Some magazines offer a slightly different model, where subscribers to the printed magazine get access to the expanded content on the Web site, but others must pay or sign up for a subscription. *Entertainment Weekly* (<http://www.ew.com>) has recently started using this method and *Smart Computing's* (<http://www.smartcomputing.com>) revamped Web site will also be in this vein.

Even though you may have to pay for what you want, at least you will be paying for information more closely tailored to your interests.



Short term: Less online content is free.

Long term: Intelligent search agents make it a snap to find what you need.

After communication, the majority of 'Net users log on for research. They want answers that, until recent years, they would have had to dig up in a library or harass out of a local expert. But now, anyone with a modem and an ISP has access to billions of snippets of free info—way too many snippets. The way you obtain information over the 'Net is continuing to change, however, as well as its cost.

Search services. The most common way to find what you're looking for on the Web is through a search service, such as Yahoo! (<http://www.yahoo.com>) or Lycos (<http://www.lycos.com>). These sites have powerful engines and databases that rapidly scan scads of Web sites for data relevant to your query. But



Short term: Merchants will begin to change how they sell products and services on the 'Net.

Long term: Consumers will warm up to online shopping and make it big business.

Industry analysts love to tout the numbers of online commerce. Even the government will throw big, impressive stats out there. A recent Commerce Department report said that 10 million people across the United States and Canada made online purchases by the end of 1997, up from 7.4 million six months earlier.

Changing commerce. But as Steve Kowarsky, the president of CosmoCom Inc., says, commerce through call centers that conduct sales and service over the phone is 5% of the gross national product of this country. "This means that in one week, there's more business transacted over the phone than there has been in the entire history of the Internet," he says.

This will change, but it may be slow going. The majority of Internet commerce is business-to-business transactions. The same Commerce Department report estimates that by 2002, business-to-business purchases could reach \$300 billion.

Simple purchases. Compared to other forms of buying, few consumers are shopping in online malls. One reason is that most people need to try before they buy. It's OK to buy books and CDs online because people know what they're buying. That's why a company such as the online bookseller Amazon.com has become a leader in Internet product sales.

But something such as expensive clothing or a cruise? Forget about it, at least for right now. But it will happen, Steinert says.

"How popular is clothing on the Internet going to be? A way to answer that would be to ask a question: How popular is catalog marketing? And the Internet is just as convenient, if not a more convenient medium," he says.

Steinert agrees that complex purchases may not be ideally suited for the 'Net. "If the price is relatively low, and the decision is simple, then people are going to buy." But there will be more reluctance to purchase something that requires a lot of thought such as a car.

Innovative sales. Some of these problems can be addressed by using what Kowarsky calls live-contact enabled applications. His company's technology will let consumers browse at an online store, and if they see something they like, click a button to talk to a real person about purchasing possibilities.

"We've heard that American Airlines requires two telephone calls to resolve every ticket that gets, so-called, 'sold' by the Internet," he says. With live-contact enabled applications such as CosmoCom's CosmoCall and others such as Microsoft's *NetMeeting*, users can collaborate from computer to computer.

The possible uses for these applications are limitless, and most are probably only a couple of years away. More than just talking to a live representative, consumers could get "hands-on" technical help from a support person who could see their computer and locate the problem. "There will come a time when the words 'Read me your Config.sys file' are never heard again," Kowarsky says.

Companies may also keep histories for their customers. For example, if you previously purchased products from a company, a representative could access your history and know whether your previous interactions with the company were good or bad without looking up each transaction.

These applications will also aid the workplace. Coworkers across the country will be able to work together on the same project. A salesperson could walk you through a virtual tour of a cruise and then let you know about the travel agency's special deal.

"This will probably become popular in intranets (Internet-like internal networks) before it becomes popular over the Internet, simply because you have more control over the whole environment," Kowarsky says. "But this is where the Web will be if it ever fulfills its potential."

Online bargain shopping. Steinert says low prices are another trend that will fuel 'Net shopping.

"Merchants that are smart about Internet marketing realize that their costs are a lot lower and they're going to pass some of those savings on to the customer," he says. "It typically costs about one-tenth as much to fulfill an order over the Internet as it does through a catalog."

In addition, businesses will use the 'Net as an outlet for their clearance items. "Merchants don't want to alienate their current distribution channels. One way to balance that is to sell close-outs on the Internet," Steinert says.

Comfort and security. Falling prices and a variety of products will increase the consumers' desire to spend their dollars online, but a fear factor still holds many back. Until buyers feel comfortable entering a credit card number into a Web page or creating a virtual debit account, online shopping will remain a fraction of spending in the "real" world.

Most people involved with electronic commerce think it is an evolutionary issue. When the first automated teller machine (ATM) appeared almost a decade ago, many users were insecure about it because humans weren't involved in the transaction. But now, unless you're a techno phobe, you probably use one on a weekly basis. "People will get more comfortable with the technology, and there will be less hysteria about Internet fraud," Steinert says.

Last year, he noticed an increase in an online shopper's willingness to spend with the merchants who use Viaweb's software. "In December of 1996, we saw about 10 cents spent per visitor, and this December, we were seeing about double that."

The recent past points to the near future of the Internet. We will see more consumer interest in online shopping, we will have access to better research tools and more information (but perhaps at a price), and our access speeds will be ever-increasing and still never fast enough to do what we want. You can bet, however, that they will be fast enough to do things we have only imagined until now. ■

by Joel Struch



Internet Hits & Misses



Making broad statements about the Internet and the World Wide Web can be dangerous. It seems no matter what you say, some people will judge you a genius, some an idiot. They'll probably both be right. That's what makes it difficult to identify the 'Net's hits and misses. Pinning down a few technologies and trends that have succeeded, or crashed and burned, is at best an imperfect science. Choosing some specifics is easy (CompuServe's short-lived WOW! Online service comes to mind as a definite miss), but most broader topics are more slippery. It seems no matter how solid an idea, there are always some contradictions. For every surefire hit, somebody can point out how it missed. Such is life on the Web.

Users still need some road signs about what is working online, however. So we tapped facts, expert testimonials, and our own 'Net

experience to create a short list of what's gone right and what's gone wrong.

The Hits



We're generally optimistic folks, so it only seems right to start with our list of major ideas that seem to be going right on the Web. Of course, our first selection also happens to be a perfect example of some of the contradictions we ran across while compiling this list.

■ **Online Sales.** Anybody who has been within 50 feet of a Web-connected PC has probably heard of Amazon.com (<http://www.amazon.com>). Since its 1995 launch, the online-only bookseller has become the poster child for a successful Web business with 1997 sales of \$147 million. It seems those folks

who've been complaining that there is no way to successfully sell on the Web are wrong.

An important point to note, however, is that despite the rapid growth and impressive revenue Amazon.com, it is still not making money. In fact, because it spends gobs of cash on marketing and advertising to build its customer base, it lost money to the tune of \$27.6 million in 1997, according to *Forbes*. Some experts say the company could turn a profit immediately if it scaled back its marketing machine. Others foresee a rough road ahead as giant booksellers such as Barnes & Noble set their sites on Web sales. Regardless of predictions, one thing is clear: Right now Amazon.com knows how to sell on the Internet.

"Online merchants need to focus on four things to get people to buy, and Amazon.com does them all," says Maria LaTour Kadison, senior analyst of online retail strategy at Forrester Research. Those four things include easy and fast site navigation, reduction of the first-time purchase risk, fast checkout speeds, and excellent customer service. "The number one reason people shop online is convenience, not price," she says.

With security issues becoming less of an issue (at least in the minds of many 'Net surfers), more people are becoming comfortable with the idea of buying on the 'Net. According to the Commerce Department, nearly 10 million people in the United States and Canada purchased items online in 1997. That sounds like a hit to us.

Not everything sells well, however, and many companies just don't seem to understand how it's done. "High-fashion items that are very expensive and that require an excellent fit probably won't work," Kadison says. Grocery shopping is another dicey area. "It's not because there's a lack of demand, but it's really hard to do profitably because of the perishable nature of the product."

Other sales picking up steam online are in the services category, particularly in the areas of finance and travel. Travel services are especially well-suited to online buying, Kadison says. "It's easy, and it's information-intensive, which is what the Web is good at."

■ **E-mail.** Everybody's doing it, and that's what makes E-mail a shoo-in for our hits category. Electronic mail has always been one of the most useful tools of the Internet. Now more people are gaining access through low-priced home PCs and Internet service



providers (ISPs), online services such as America Online, free dial-up and Web-based E-mail services such as Juno (<http://www.juno.com>) and HotMail (<http://www.hotmail.com>), and corporate networks. The Electronic Messaging Association reports there are about 80 million E-mail users. By 2000, 108 million people will own an E-mail account. Whether it's sending official correspondence or writing your mother, E-mail is hot.

Regina Joseph, senior analyst with the marketing research firm Jupiter Communications, says aside from letting you send speedy, free messages, E-mail is a hit because it's constantly evolving. "E-mail is diversifying in its role, and it's no longer merely a way for one person to communicate to another," she says. "Companies are using E-mail for retention marketing, and E-mail listserve (mailing lists) are becoming an important way for people to communicate editorial information."

Of course, there's some bad news amongst all that good stuff. Plenty of unscrupulous companies take advantage of the medium. Spam, or unsolicited E-mail advertisements, is a problem that's growing to epic proportions as more companies realize how to use it to reach thousands of potential customers in a cheap and easy way. Until lawmakers write new anti-spam laws, or more effective E-mail filters become available, it's going to remain one of the costs of enjoying this evolving communications format.

■ **Search Services.** These services aren't just for searching anymore. They are a hit (Web talk for visits to a site) as they're usually the first place most of us visit on the Web. Without one, finding your information brings to mind needles and haystacks. Despite their necessity, the best of the bunch continue to evolve and improve rather than rest on their laurels. Yahoo! (<http://www.yahoo.com>), one of the most popular and powerful directories available, adds more features all the time. The company entered a new category with its recent deal with telecommunications giant MCI that pairs Yahoo!'s friendly user interface with MCI's Internet access service, says Jupiter's Joseph.

"We're seeing more movement toward a full-service, multi-functional service for customers where they can get free E-mail, search

engines capabilities, aggregated content from third-party providers, ISP access, instant messaging, and chat," she says.

Yahoo! is becoming what the industry calls a portal. As in, an entrance. Netscape Netcenter is a considered a portal. (It's the default setting where millions of users of the *Netscape Navigator* Web browser start their Web use every day.) Yahoo! wants to be a similar place where you enter the Web. If it has its way, you'll stay the

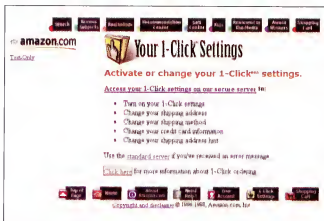
software; we're talking about stuff you must have. Veteran PC users will remember the frustration that came with realizing you didn't have the software to run your new hardware. You had to call the company, ask for replacement software, and wait several days for it to arrive on a diskette in the mail. Today, you just head to the company's Web site and download the needed software.

Or even better, let's say a company finds an error in its software (yes, it happens).

Today a user can visit the Web site of the company and obtain a patch—a piece of code that fixes the defect—in minutes. Joseph says **shareware** and **freeware** (low-cost and free software) areas are vital because they help software development companies stay in touch with their customers.

The downside to this hit is many companies have started taking advantage of download capabilities. Instead of holding a software product until all the bugs are worked out, many rush half-baked products to the market because they know users will visit the Web site for fixes later. It works in the short run, but not everybody enjoys

having to constantly "fix" software they buy.



One key to Amazon.com's strong sales is customer service. Repeat customers must enter credit card and shipping information only once.

whole time you're on the Web, looking at information from Yahoo!'s advertisers.

Detractors point out that instead of working to become something else, search services should first improve what they do now. Why, they wonder, must we spend so much time wading through junk to find what we need online? They have a point. Even industry insiders agree the actual search process needs improving. Dave Wilson, vice president of marketing at the newsgroup search service DejaNews (<http://www.dejanews.com>), says improved search capabilities should be a priority of all search services. "Continuing to improve our ability to filter things is really important," he says.

With some luck, much research, and plenty of money, search services/portals will find better ways to go about the search process. In the meantime, we have to ask: Would you rather pick through the Web for information on your own? We didn't think so. That's why search services are a hit. (See "New Portals To The Web" in this issue.)

■ **Software Updates.** Finally, no Internet hit list is complete without pointing out the appeal of downloading software. We're not just talking about downloading new

The Misses



Technology is never more risky than when you involve the Internet and World Wide Web. Things move fast, and something that seems like a good idea often turns out poorly in the end. Whether it's an idea, a law, or even a whole technology, these are some of the things as of right now that belong in our miss category. We wouldn't be surprised, however, to see some of these areas change direction and end up in next year's hit column.

■ **Push Technology.** This concept sounds appealing. You can have information transmitted (**pushed**) to you from the Web, instead of finding and downloading it (**pulled**) yourself. Rather than searching out news every day, the information shows up on your digital doorstep. It's great until the constant information feeds start hogging your limited Internet connection (measured in **bandwidth** capacity), clogging your corporate network, and filling up your hard drive. That is basically what happened with push technology, a classic case of too much of a good thing.



"Push was over-hyped to the extreme," Joseph says. In the end, all that data constantly streaming down your Internet connection just was a bad idea. "If I have a slow connection, I'm not going to be happy," she says. Many users weren't. Many dropped push of their own accord, while others abandoned it because of problems it caused with local-area networks (LANs) in their offices. Many office workers use 'Net connections running through the LANs. Some overworked LANs were crippled under the load of pushed information. Other push users grew disillusioned after finding the information wasn't useful enough to justify the potential download headaches.

The concept of pushing information, however, is far from dead. It's just taking on more bandwidth-friendly forms. Joseph says items such as E-mail and newsletters work well because their file size is relatively small. "It's one thing to push an E-mail message into somebody's Inbox, but something else to push down a whole Web page."

Charging For Online Content.

It's awfully hard to charge for something customers usually receive for free. Online publishers are learning this the hard way as they try to shift online publications from advertising- to subscription-driven models. The results are often rapidly declining reader numbers, which can eventually damage ad revenue. In a sort of middle-ground approach many publications try to start things by charging for only portions of the site content. Of course, that's when most of readers adopt the "just the free stuff" attitude. These difficulties make charging for Web content in general a miss.

Of course, when we say there's no way to successfully charge for content, one company comes along and shows everyone how it's done. A little online publication called *The Wall Street Journal Interactive Edition* (<http://www.wsj.com>) started charging for access in 1996. Current rates are \$49 a year, or \$29 for subscribers to the print version. In April, the publication reached the 200,000-subscriber mark. Most experts point to its excellent content and highly recognized brand name for its success.

Few think other online publications will successfully follow in its footsteps.

"If you mine a particular niche of data that is very deep and narrow, and you have a unique brand name that others can't compete with, then you have the potential to charge for subscriptions," Jupiter's Joseph says. "Aside from that, there is just far too much competitive content that is available for free. *The Wall Street Journal* is an anomaly."

Anomaly or brilliant content and marketing, we'll know whether charging for content really

possibility of buying a modem that ended up with the losing standard. ISPs, afraid of investing in the wrong standard, held off on offering service for the modems. And then, to top it off, the things operate slower than advertised (by law, they can't exceed 53Kbps, and on average they transmit at more like 45Kbps).

Recently the International Telecommunications Union settled on a universal standard called V.90 (a mix of the first two standards). With a universal standard, and prices dropping, more people may try the modems. Plenty of others, however, will probably just skip it altogether. And with new, faster technologies just around the corner, why not?

Government Regulation.

The government fired a big cannonball at the Internet in 1996 when the Communications Decency Act (CDA), part of the Federal Telecommunications Act became law. The act outlawed sending or displaying "indecent" material over the 'Net. In June 1997 the Supreme Court

rejected the act, affirming a lower court ruling that called it unconstitutional under the First Amendment. The ruling confirmed that this approach to government censorship of the 'Net is one big miss.

In the court's opinion, Justice John Paul Stevens wrote, "In order to deny minors access to potentially harmful speech the CDA effectively suppresses a large amount of speech that adults have the constitutional right to receive and to address to one another."

Since the court rejected the CDA, there have been no successful attempts at censorship of the Internet. Joseph foresees continued failure for efforts to censor 'Net content. "I don't think the government has a leg to stand on," she says. "I think those are First Amendment issues, and I think the Constitution has pretty much taken care of that."

Not every person with a computer and an ISP account should have access to everything that is out there. Nobody wants their kids looking at some of the Web's contents. The key will be finding an equitable middle ground between freedom of speech and protecting innocent Web users. A mistake in this area would be the biggest misses in this great network's short history. ■

by Tom Mainelli

Yahoo! continues to increase its services in efforts to make its page the starting point for World Wide Web travels. The site recently took on this new look.



The page you requested is available only to subscribers.

If you're a subscriber...

User Name:

Password:

☐ Show my User Name and Password
Most subscribers don't check this option.

If you're new...

- Learn more about subscribing to The Wall Street Journal Interactive Edition, News & Column and Sunday Morning Interactive.
- Register now as a NEW subscriber.

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Only paying subscribers with the right password get into *The Wall Street Journal Interactive Edition*. The site is one of very few to successfully charge for World Wide Web content.

belongs in the miss category as other major online players such as Microsoft's online magazine *Slate* go the subscription route.

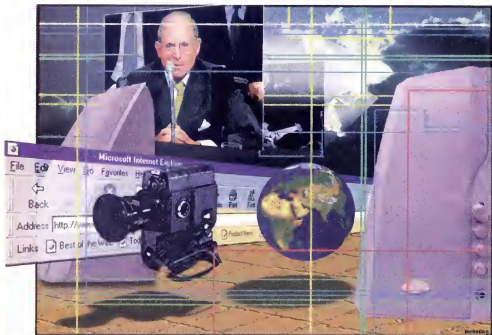
56Kbps Modems.

You can't talk 56Kbps modems without at least mentioning the great 56 kilobits per second (Kbps) modem debacle. These 56Kbps modems were created to bring faster 'Net access speeds to the masses. But they hit the market with two competing standards (x2 from US Robotics and K56Flex from Rockwell) and have been a mess ever since. If your ISP used a different standard than the one your modem used, you couldn't take advantage of the modem's speed. It looked like one standard would eventually emerge, but picking the winner was anyone's guess.

The modems were over-priced at the start, and many computer users balked at the

Tap Into

Audio & Video On The 'Net



The Internet created in the late 1960s bore little resemblance to today's 'Net and World Wide Web. No one looking at that original, rudimentary communications tool could foresee what was in store. The 'Net has outgrown its reputation as a hangout of nerds and hackers to become part of everyday life for millions. The main key to its spread is the World Wide Web, which added pictures and sounds to the information available.

Now we're in the 'Net's refinement stage and, with the advent of faster connections and more powerful computers, the Web has grown beyond still images and occasional brief sound files. Companies and individuals increasingly work to make their sites more attractive and informative (and even profitable) by adding audio and video clips. These multimedia additions come in the form of films, news, radio broadcasts, TV broadcasts, games, and even virtual pets. To use all this media, you need only a few simple software plug-ins.

Where the yesterday's Web let you read a bicycle company's catalog or read the news, for example, the Web of today shows you a short video of the bikes in action and lets you listen to hourly newscasts. You now can open a window on your screen and watch the latest CNN news or listen to CDs and audio books before you buy. You even can keep up with your former hometown or distant cities where you do business by listening to the local radio stations online. A great example of the possibilities is AudioNet (<http://www.audionet.com>). It offers a wide range of programming arranged in channels from the latest news to music to technology to spiritual material.

It takes careful engineering to send all this content over the 'Net to your computer. Audio and video files are extremely large compared to text files, and until recently, it was difficult to pump music and video to users fast enough to make it effective. To be truthful, unless your link is good and the 'Net uncongested, broadcasts

online are still far from ideal. Audio files may regularly cut out, and video images may change only every 10 seconds or so. You can, however, always expect the 'Net community to make constant refinements and improvements.

Real-Time Streaming. Effective online data arrives in **real time**, meaning you can hear and see the latest news, sports scores, and other information as fast as if you were watching television or listening to a radio. True real-time video is rare, but audio often achieves this goal. **Streaming** the information makes real-time delivery possible. This means the data starts arriving in a **buffer** (temporary storage) on your PC a few seconds before you start watching (or listening). Once you start watching, the data continues to arrive. You see or hear everything a few seconds after it arrives, but the flow is continuous thanks to constant filling of the buffer. You see a constant flow of information that looks like a live update.

In practice, streaming isn't perfectly smooth. The 'Net's behind-the-scenes connections can be spotty, so the stream rarely comes constantly. The buffer often empties and has to stop to refill, producing interruptions in the video or audio.

Pack It In. Audio and video files are large enough that they must be compressed in order to be delivered to your computer fast enough for practical use. Compression works because a lot of unimportant information makes up a picture. For example, in a picture of a field, the computer needs to know only which areas of the image must be made a certain color rather than giving the shade of each pixel. This means that a standard image can be significantly reduced in size.

The same applies to audio and video images. The **Motion Picture Experts Group** (MPEG) file format is an effective way of compressing a video stream. It works by updating only the moving part of the screen instead of the whole thing. Pictures encoded with the MPEG format are of better quality and can be larger on the screen than most other formats. They do, however, require a good processor speed or extra hardware acceleration such as a graphics card with special graphics processors. For this reason, most images are stored in **Audio Visual Interleave (AVI)** format. These videos tend to be the size of a postage stamp, but they're usually clear and effective. It's rare



to find real-time streaming of images in these formats as they take a long time to download unless you have a blisteringly fast connection (specifically one using something other than a modem in a PC). Usually AVI and MPEG files are used in the form of short movie clips such as movie trailers or samplers. You typically must download them before viewing.

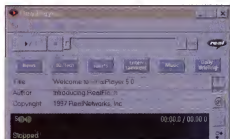
Streamed content travels over the Net as compressed data that is decoded by the software on your computer. The two main systems used are .RA or .RAM, which is handled by the *RealPlayer* program and Advanced Streaming Format (.ASF), handled by *NetShow*.

RealPlayer. There are a variety of formats for audio and video online, but the most popular follows the RealAudio standard, playing on the RealPlayer software from RealNetworks. You'll find that RealPlayer and other player programs described in this article add themselves seamlessly into most Web browsers and appear automatically whenever you access the relevant data. No special skills or requirements are needed once the program files are downloaded and installed. When you access a site offering streamed data, it will inform you of what is needed to have the audio or video stream and offer directions to where you can obtain the software.

Your window to most audio and video online will probably be the RealPlayer program from RealNetworks. Most sites with multimedia features require RealPlayer or another RealNetworks product to view the content.



There's no remote control, and the pictures may be a little jerky, but the Ultimate TV site is otherwise a lot like watching the tube on your PC.



The RealPlayer window takes up little screen space when playing streamed audio.

The Real format is probably the best-known audio/video delivery system online. You can download RealPlayer for free from <http://www.real.com>.

RealPlayer has many options that let you customize it to handle files for optimum performance on your system. Audio and video content streams at a rate that is compatible with the speed your computer can handle. In theory at least, you should be able to view or hear any available content. If your machine configuration is too slow to handle a data stream, a warning appears instead. The RealPlayer screen includes six categories, each of which takes you to a pre-programmed station covering News, Biz/Tech, Sports, Entertainment, Music, and Daily Briefing. These can be customized and serve both as a good starting point to find information and as a quick way of reaching your favorite station.

The RealNetworks site also offers RealPlayer Plus for \$29.95. This advanced player offers even more options and pre-programmed channels. The Plus program adds the ability to scan for live broadcasts across the Web as well as letting you record information so you can listen to it offline later. There are 40 pre-sets for programming choices, and you even can set up a personalized page at <http://www.timecast.com> with your favorite selections available to you immediately. RealPlayer Plus seems to be more stable than its free counterpart. The buffering is better, so the sound and video are a tad clearer and smoother.

If you want to add audio and video to your Web site, the tools are available for a small fee. For example, *RealPresenter* will convert *Microsoft PowerPoint 97* presentations to the Real format. *RealPublisher* is like a desktop-publishing package for adding sounds and

Tune In Here

Visit these World Wide Web sites to try streamed audio and video and show off the capabilities of programs mentioned in this article.

<http://www.audionet.com> A full range of sites using *RealAudio*, *Netshow*. You'll find streamed audio and video from live radio broadcasts to complete recordings to movie trailers and demos.

<http://www.real.com> RealAudio's home site provides many links to other sites featuring RealAudio, RealVideo, and other Real products. You can download the *RealPlayer* here, which will play both RealAudio and *RealVideo* material.

<http://www.nextpage.com> High-quality audio book clips. The site hopes to sell you the complete audio books, but it's a good example of streamed audio even if you're just browsing.

<http://www.film.com/screen/index.htm> Trailers of new cinema releases. An excellent example of RealVideo.

<http://www.timecast.com> Another general site promoting the RealPlayer capabilities. Watch clips of your favorite television shows and even update yourself on the latest sporting events.

<http://www.theatres.sre.sony.com/trailerpark> QuickTime trailers for coming movies. Files can be slow to download, but the quality is good

<http://www.policescanner.com> If you like to listen in to the emergency services, go ahead and listen in on actual live police and fire calls from Los Angeles, New York, and Dallas. □



video in the .RA format. This is also available from the RealNetworks site for \$49.95.

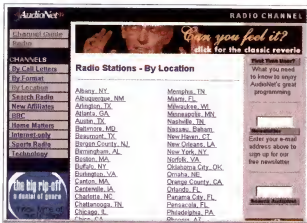
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Microsoft includes full instructions on how to add Netshow content to your Web page. Point your browser to <http://www.microsoft.com/netshow/howto/content.htm>.

■ **QuickTime.** The QuickTime system developed by Apple is used mainly for downloading movie clips. It takes a long time to download a clip with a standard modem, and the final picture is generally small, although the quality is good. You can find a good example of the use of QuickTime at <http://www.theatres.sre.sony.com/trailer.park>. This collection of coming movie trailers requires patience while the files are downloading, but the use of the medium is ideal. Streamed trailers tend to be patchy for consistency and quality, but once a trailer is downloaded, this improves considerably.

QuickTime 3.0 is now available for Macintosh and Win95. You can download the player for free at <http://www.apple.com/quicktime>. Of course, you can upgrade to QuickTime Pro and add other features for \$29.99. This adds a range of extra capability such as the ability to handle more than 30 different audio and video file formats and save clips for viewing later.

■ **Make Your Play.** RealPlayer, Netshow, QuickTime, and other multimedia player programs are available for free download from their respective Web sites. When you decide to use one of these programs, your first task is to establish whether the software is already installed when you set up your Internet software. Find a site offering the material you're interested in and attempt to play a file. That usually means simply clicking a link. Your Web browser, such as Netscape Navigator or Microsoft Internet Explorer, should produce a dialog box telling you when the appropriate plug-in is missing. It will offer you the option



AudioNet brings the world to your PC with options such as live radio broadcasts from stations around the country.

to get. Follow the link to reach the download area of either Microsoft Netshow or RealPlayer, for example, to get the required files.

For Netshow, the file is called Nsplay.exe and is 1.75 megabytes (MB) in size. This should take around 20 minutes to download using a 28.8 kilobits per second modem and depending on the quality of your connection and how busy the 'Net is at the time. The RealPlayer file is called Rp32_50.exe and is 1.33MB. This takes around 15 minutes to download. After you download the files, locate them on your hard drive and double-click them to install the

program. Follow the instructions on-screen.

Accessing sound and video files on the 'Net is now just a matter of visiting sites with the content you want. Click a button labeled Listen; the RealPlayer or other required program will open automatically and play the multimedia file. If it is streamed content, the player will continuously update and refill the buffer as you listen or watch. A message window in programs such as RealPlayer should keep you updated on what's happening with your buffer

and your media stream. Sometimes the buffer will empty and the stream will stop while it is refilled. This depends on the quality of your Internet connection and how heavy the other 'Net traffic is.

You'll get used to that kind of dependence on 'Net factors beyond your control. The buffered approach smoothes many bumps in using streamed media, but online audio and video are still new enough to have their share of hiccups. ■

by Tony Kaye

Multimedia File Formats

Here are some of the file formats you'll encounter on the 'Net:

ASF – Advanced Streaming Format. This is the standard file format used by Microsoft NetShow.

AVI – Audio Visual Interleave. A form of compressed movie.

MIDI – Musical Instrument Digital Interface. Small music files often used on the 'Net. The quality of files following this standard relies on the quality of your sound card as these files contain instructions to reproduce notes rather than recordings of the instruments themselves.

MPEG – Motion Picture Experts Group. The best and fastest form of compression for movies, but it's too slow to use for streamed media.

QTW – Apple QuickTime for Windows format.

RA – The file format used by streamed media playing on the RealAudio player.

RAM – The RealNetworks streaming format for sound and video.

WAV – The format often used for small sound files that are downloaded before playing

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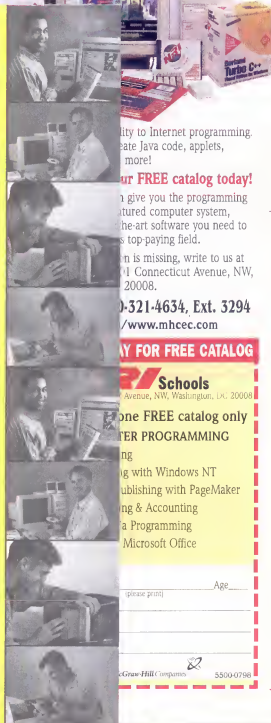
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**Content-Rich Sites Want To Be Your
First Stop—And Main Hangout**



America Online's 11 million members establish it as Lord of the Online Services. No other service even approaches that mark—not CompuServe, not Prodigy Internet, not The Microsoft Network. Internet service providers (ISPs) have enjoyed growing memberships since 1995, but none in particular has emerged as a major player. America Online's (AOL's) biggest challenger may not be dial-up services at all, but full-service World Wide Web sites that change the way you surf.

Major companies that have achieved fame and fortune on the Web, such as Yahoo! (search engine), Netscape (Web browser software), and Lycos (search engine), are no longer satisfied with attracting you to their sites. They want to keep you there, provide

you with a home port in the vast sea of the Internet, and keep you coming back. These developing portal sites could make the Web easier to use than ever before. Their key is making sure the content you want most is never far away.

"There is a very clear effort, from our perspective, to create user dependency upon a site," says Ron Rappaport, an industry analyst for Zona Research. If your E-mail, contact information, and stock reports are available at one Web site, you'll undoubtedly return to that site. To the sites, that means big audience numbers, which can attract big dollars from advertisers.

The existence of such Web sites represents the fading of AOL's advantage. The World Wide Web used to be a loose connection of

content scattered among specialized sites. You would jump onto several different sites to gather all your information. Before the Web's coming of age, you sometimes had to dial into several online services. AOL's allure has been its one-stop access to diverse information.

Several Web directories such as Yahoo! and Netscape Netcenter now offer similar features. They are creating more original content. What they do not offer themselves is easily accessible through their Web directories. This effectively brings the type of content users want most under one roof, similar to the AOL environment. Users are no longer limited to typing keywords into the Yahoo! search engine to find the news and information they want. They often can find it at Yahoo! itself.

■ Help From A Bunch Of Yahoo!s.

Yahoo! (<http://www.yahoo.com>) is one of the most heavily trafficked sites on the Web, with 30 million visitors a month. It offers a wide variety of content and services to attract visitors. You can obtain free E-mail, visit with people online in chat rooms, find local weather reports, check stock quotes, buy merchandise online, and find just about anything else you would expect to at a major online service like AOL.

One of our favorite features is the ability to create a customized page at My.Yahoo!. You can choose to receive daily news updates in several categories, such as business news, entertainment, and sports. You also can create an online portfolio of your stocks and even consult your Yastrologer for a daily horoscope.

Yahoo! also provides a Web directory especially designed for kids, called Yahoooligans. Here, kids find links to school and entertainment sites appropriate for them. Seniors also have a Web directory geared toward their needs.

Diane Hunt, Yahoo!'s director of corporate communications, doesn't see Yahoo! becoming a carbon copy of AOL, however. "AOL places a stronger emphasis on its own closed, proprietary environment," she says. "Yahoo! is an expert at enabling consumers to get the most out of exploring and using the Internet at large." AOL has the channel-driven interface 11 million users call home, complete with content you can't obtain anywhere else, but Yahoo!'s strength is as a springboard to the entire World Wide Web.

Rappaport sees Yahoo!'s goals a little differently than Hunt. "Yahoo! desperately wants to be the AOL of the Internet," Rappaport says. The content is similar, and Yahoo! is trying to create a sense of community at its site, such as users find on AOL. Hunt says Yahoo! plans to increase the amount of premium content on the site.

Yahoo! recently teamed up with MCI to offer Yahoo! Online Powered by MCI Internet. Users who sign up get three months of unlimited Internet access for \$14.95 per month. After that, the price goes up to \$19.95 per month, although MCI Long Distance customers retain the \$14.95 rate. Note that this is not a merger between MCI and Yahoo!. Basically, MCI provides the Internet connection as the ISP, and Yahoo! provides the content. That is where the partnership ends. MCI already has an Internet service, after all.

Rappaport says MCI and Yahoo! both benefit from their joint efforts, although MCI probably comes out ahead in this agreement as it sweetens the deal in the battle to attract long-distance customers. "To get the \$14.95 rate, you need to be an MCI customer," he says. MCI is betting that many people will gladly sign up for the long-distance plan to get a cut-rate Internet connection.

Of course, you don't need to access the 'Net through MCI to take advantage of Yahoo!'s many services. Yahoo!'s site is free to 'Net users dialing up through any ISP. But most ISPs do not offer Internet access for only \$14.95 per month. This is the point to remember, Rappaport says. The low rate will undoubtedly cause a number of Internet users to dump their current ISPs in favor of the Yahoo!/MCI connection. And Yahoo! Online should siphon off a significant number of users from AOL and the other online services as well.

■ Cast Your Net On The Web.

Netscape also hopes to become the home base for a large number of Web users. The company, known for its once-dominant Internet browser, *Netscape Communicator*, is on the lookout for new revenue sources.

Netscape quit charging for Communicator earlier this year. Ken Rutsky, manager of Netscenter Programs, says Netscape did not need revenue from Communicator sales to stay in business. Of course, the decision to drop the charge was made easier by the growing threat from the competing *Microsoft Internet Explorer* given away free to users.



Netscape's Netcenter puts the World Wide Web's resources at your fingertips and has attracted 4.3 million registered members in less than a year.

Netscape's revenue now comes from two main areas: Internet, extranet, and intranet solutions for business and from advertising, product, and sales services on the Netscape Web site.

Netcenter (<http://www.netscape.com>), launched in September 1997, is the starting point for all of Netscape's online offerings. Netcenter's purpose, Rutsky says, is to become a portal site like Yahoo!. "Our goal is to provide users with 80% of the information they need" and to direct them to the other 20%. Netscape wants Netcenter to be the starting point and main home of millions of Web surfers. Netscape, however, has no plans to become an ISP in the foreseeable future.

Since its launch, Netcenter has registered an impressive 4.3 million members (membership is free). Netcenter traffic nearly doubled between December and March, from 13 million unique visitors per month to 24.4 million unique visitors. (That's still a bit behind Yahoo!'s 30 million unique visitors per month.) "We looked at the business opportunity and felt it was enough to focus a more concerted effort at it. And that's when we launched Netcenter," Rutsky says.

He cites the keys to Netcenter's popularity as the value of the services and the content available. The division of Netcenter is into four main categories: Community, Computing, Commerce, and Content. Each category contains links to different areas of the site. Netscape strongly encourages an online community with programs such as the Professional Connections channel, an online forum for professionals who use the Web in their business. You can further immerse yourself in the neighborhood by looking up registered Netcenter members in the Member Directory and sending messages with the Instant Messenger.

One of Netcenter's most successful programs is the In-box Direct program. It lets users subscribe to more than 135 content providers, including *USA Today*, *The Wall Street Journal*, the *TV Guide* Entertainment Network, and *ABCNews.com*. Rutsky says the program has delivered more than 11 million subscriptions to about 1.6 million subscribers.

Netcenter also offers shopping with retailers such as Amazon.com and FTD Flowers. You can buy CDs online at Music Boulevard and software from the Software Depot by Software.Net. "We're one of the largest, if not the largest, resellers of software on the Web through our Software Depot," Rutsky says. You'll find more than 20,000 programs, ranging from Utilities to Productivity to Education titles.

Automatic Delivery. Channel Finder helps you select what type of content arrives automatically on your Desktop with Netscape's *Netcaster*. This is slightly different from Netcenter's In-box. You can subscribe to the same types of content, but Netcenter content arrives on your Windows Desktop rather than your E-mail Inbox. Netcaster also lets you download Web pages and view them offline.

SmartUpdate lets you quickly and easily download and install components for Communicator. SmartUpdate will remember what components you currently have installed and make recommendations as to what components will improve your Web usage.

Netscape also offers a Web directory powered by Yahoo!, called *Netscape Guide* by Yahoo! This Internet guide contains the usual links to Business, Entertainment, Sports, and Travel links, but the selection is narrower than that found on Yahoo!'s site.

Netscape plans to expand its services in the future. For example, Netscape and Excite

Inc. are teaming up to offer Netscape-branded search capabilities. Netscape also plans to offer Netscape Web Mail by USA.Net, in addition to more content channels. Almost all Netcenter content is free. Premium content includes materials such as the *Business Journal* by NewsEdge. There is a free level of the service, but for \$6.95 per month, you get additional news and resources.

■ Not To Be Left Out . . . Lycos and AT&T didn't want to be left behind in the race to become a major Web portal, so they recently joined forces with telephone and Internet heavyweight AT&T. The partnership is similar to the Yahoo!/MCI deal, with AT&T providing the connectivity and Lycos providing the content.

Lycos already has plenty of services at your disposal, including the usual E-mail, shopping, news, and weather. But one of the interesting things Lycos plans to offer soon is a collection of multimedia applications for members. One called voice-enabled chat will let you speak to and hear others in a chat room, rather than communicate with the keyboard. Another application, a point-and-click directory, will let you search a directory of names, click the name, and set up a voice call to that person.

Another feature of the site will be the Personal Communications Center, a gateway to AT&T's telecommunications services. Here, you'll be able to order a variety of services from AT&T, including pre-paid phone cards, wireless service, and a 9-cents-per-minute long-distance rate for state-to-state calls for registered Lycos users. AT&T will reciprocate by promoting Lycos Online to its customers.



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But they're
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■ A Mickey Mouse Operation.

Proprietary content and services have always been the heart of an online service's offerings. But not all services try to provide something for everyone. Some pay content areas on the Web, such as Disney's Daily Blast for Kids, target a specific group.

Daily Blast is a special pay section of Disney.com designed for kids ages 3 to 12. The service costs \$5.95 per month and offers a wide variety of games, storybooks, coloring areas, and other fun activities for children. The site, which requires a password, is easy for children to navigate. A special section called Blast Jr. has stories and games specifically designed for younger children.

A popular section of Daily Blast is *Dzine*, an entertainment news magazine featuring dispatches from kid reporters. Daily Blast also offers E-mail, or D-Mail in Daily Blast terminology. One key Daily Blast feature lets parents control what level of Internet access the children using the site can have. They can

restrict small children to the Daily Blast site only, or they can give them various degrees of freedom to travel the Web. The security feature is an important part of Daily Blast because Disney wants to create an environment where parents feel comfortable bringing children.

The site includes many recognizable characters, but according to Disney Online, Daily Blast is not a promotional vehicle for Disney films or products. "Disney's Blast really has its own flavor. You wouldn't necessarily go on and say, 'Oh, this is a Disney thing,'" a Disney spokesperson says. In other words, Mickey isn't plastered into every nook and cranny. In fact, some of the characters on the site were designed specifically for Daily Blast.

Disney knows family entertainment and has no plans to expand its online services into unfamiliar territory. It's unlikely you'll be seeing stock tickers on the site anytime soon. "Disney has always been very keyed into the needs and wants of families . . . That's what we're best at," a Disney Online spokesperson says. "We don't want to go out of our realm."

There's no need to leave territory you know this well. Rather than attempt to satisfy everybody, Disney serves the market it knows best. It's another smart way to chip away at competing online services. Disney and similar services hope customers will pay a rate lower than AOL's for narrowly tailored content.

Clearly, the line between online services, ISPs, and Web directories continues to blur. No major Web directory has truly cloned AOL. But they're getting closer all the time. Rappaport says, "I think AOL has taken a look at the fact that there is an alternative now." He expects AOL to act accordingly in terms of its future marketing plans and partnerships.

What that means for the future of AOL's members is anybody's guess. AOL is bound to see a slip in membership if ISPs continue to offer online connectivity at lower prices and Web sites continue to increase the content and services consumers crave. In a few years, it may be time to crown a new Lord of the Internet. ■

by Michael Sweet

Yahoo! once just pointed you to news and other information. Now it provides it.



An Abridged History Of The United States

<http://www.us-history.com/choose.html>

This site, which covers U.S. history through the close of the 1995-96 term of the U.S. Supreme Court, is the project of a retired San Francisco attorney. This lengthy history rambles at times and contains numerous non sequiturs, but it appears to be accurate and features copious references and hyperlinks to landmark court decisions that affected the evolution of the United States. Its unique legal perspective makes the site well worth a visit for any non-professional historian or student of the law.

American Literature

<http://www.americanliterature.com>

Depending on your reading habits, this site offers either a proper introduction to or a daily dose of American literature. The main attraction is its Chapter of the Day, a quotidian helping of America's greatest writings, including such works as Mark Twain's "The Adventures of Huckleberry Finn," Stephen Crane's "The Red Badge of Courage," and Washington Irving's "The Legend of Sleepy Hollow." The site also provides a classic quote and vocabulary word of the day, as well as a special section highlighting American children's classics.

American Productivity & Quality Center

<http://www.apqc.org>

The American Productivity & Quality Center (APQC) is a non-profit organization concerned with helping businesses and organizations improve their productivity. The site features many articles, essays, and studies, which focus on such topics as

benchmarking, best practices, and knowledge management. These free materials provide useful information about improving productivity and quality in the workplace. Those who like what they see and who want to learn more can use the APQC's information about the various research resources and educational programs offered at its headquarters in Houston.

Awesome Fourth Of July and Canada Day Greeting Cards

http://www.marlo.com/holiday/july_4.htm

Why not take electronic communication one step further than the lowly E-mail message by sending online greeting cards to friends, family members, colleagues, and clients? This site helps you get your first batch of cybercards in the mail by the time either of these patriotic holidays rolls around. Just choose a card from the collection of designs, add your own two cents' worth, pick a song to accompany the card (if available), then decide where to send it. You can send the card via E-mail directly to the recipient or print the card for personal delivery.

Capitalism FAQ

<http://www.ocf.berkeley.edu/~shadab>

It's as American as baseball, Mother's Day, and apple pie. Capitalism, the social system that underlies the U.S. economic system, is so uniquely intertwined with American democracy that many people confuse the two. This site provides information—primarily in the form of questions and answers—about capitalism

and its societal effects. All information comes from the pro-capitalism point of view, of course. Compared to similar sites on the Internet, however, the Capitalism FAQ is rather objective in its examination of the subject.

Do You Know Your State Capitals?

<http://www.cris.com/~Kraft/capitals>

For as long as there have been states, trivia buffs have relished the chance to flaunt their knowledge of state capitals. Here's your chance to polish your wisdom about the 50 seats of state government. You can ask the site to tell you the name and capital of each state you select from the interactive map or take on the challenge of the site's interactive quiz.

Fedstats

<http://www.fedstats.gov>

Need a government statistic STAT? This site maintained by the Federal Interagency Council on Statistical Policy provides statistical information for more than 70 government agencies. Among the

agencies represented are the Department of Labor, the Department of Justice, the U.S. Census Bureau, the Internal Revenue Service, and the National Center for Health.

Made In The USA Foundation

<http://www.madeusa.org>

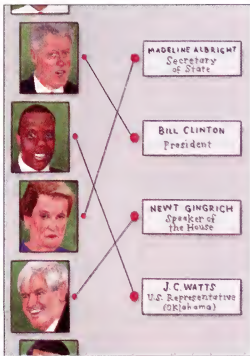
Businesses and individuals interested in promoting American-manufactured products will appreciate the information presented at this red-white-and-blue World Wide Web site. The site offers articles covering everything from McDonald's Happy Meals to the North American Free Trade Agreement. You'll also find a list of the legislation currently supported by the foundation, links to related sites, and information about Children Against Underage (CAUSE) and Employment (CAUSE).

National Political Index

<http://www.politicalindex.com>

There's no easier way to find out who's who in American politics than to surf this site for a while. The National Political Index is divided into 32 sections covering everything from up-to-the-minute political headlines to political games. With a little point-and-click action, you can get the names of your congressional representatives, find information about your state and local political happenings, link to the Web site of your favorite political party, and more. ■

compiled by Jeff Dodd





Share The Wares

Some of the best apples in the online orchard are the free (or free to try) programs available for download. Each month we'll feature highlights from our pickings.



Alexa provides the inside scoop on the sites you visit.

Alexa. This freeware program is best described as a browser enhancer. After you download (<http://www.alexa.com>) and install the software (which works with Win95 or NT, and both Netscape Navigator and Microsoft Internet Explorer), a floating bar hangs around to provide additional information about the sites you visit.

This bar can tell you how fast a site's connection is, how often it's updated, and what other Alexa users thought of it. You also can cast a vote about a favorite site (or one you can't stand). Alexa houses a variety of cached, or temporarily stored, Web pages, so if a popular page is busy, Alexa can reroute you to its stored copy.

Alexa also features a one-on-one chat service that lets you conduct real-time conversations with other users. If you're looking to super-charge your browser, this free software makes an excellent addition.

Wordware. If it's performance-enhancing products you seek, try AMF Software's Wordware. This shareware add-on turns Microsoft Word into a fully functioning personal information manager. With versions available for Word 6.0, Word 7.0, and Word 97 (and systems running at least Windows 3.x), you can access all your contacts, organize and protect your documents, and even play audio CDs from the Word toolbar.

Wordware also expands Word's Internet capabilities, letting you manage all your Web site addresses and bookmarks from within the word processor. We'd like to avoid sounding like an infomercial, but there's more! Wordware also automates Word's faxing abilities, lets you create business cards, and provides project management.

The software is free to try (from <http://www.amfsoftware.com/word/wordware.html>), but it must be registered for \$39.95 for continued use.

Quick Fixes

Most of today's software can benefit from a few updates, patches, and add-ons downloaded from the Internet. This month we focus on Dial-up Networking (DUN), the common Internet connection utility.

DUN Upgrade 1.2

If you're using an Internet service provider (ISP) for your 'Net connection and Windows 95 (Win95) as your operating system, you're most likely using DUN as your connection tool. A few updates out there will enhance DUN's abilities. The DUN upgrade 1.2 improves the interface and gives you hands-free dialing. (NOTE: You don't need this upgrade if you're already running Win95b.)

<http://backoffice.microsoft.com/download/moreinfo/win95ppt.asp>

Windows Socket Update

The Windows Socket Update 2.0 improves DUN's ability to use Transmission Control Protocol/Internet Protocol (TCP/IP), the standard Internet protocol that lets computers communicate and resolves several performance issues with the Microsoft Internet Explorer 4.0 World Wide Web browser.

<http://www.download.com/PC/Result/TitleDetail/0,4,0-45786,501000.html> (or search for "windows socket update" at <http://www.download.com>).

Try It Online

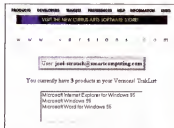
The World Wide Web is about more than just data; it offers a chance to get involved and interact online. Check here for sites that let you get the most from the Web.

Versions

<http://www.versions.com>

The Versions Web site can help you keep track of the software installed on your system. Sign up for free E-mail updates about the programs that most interest you. You just enter your E-mail address and follow steps to enter your operating system and a variety of software categories (such as Utilities or Graphics) you use. Versions promises not to send any junk E-mail, so you'll receive only the message about updates, and you can cancel any time.

You'll receive notification every time a new release or update is available in your categories. With the free Basic service, you'll also be able to select three specific products that Versions will track for you. The extended service



The Versions Web site will keep track of the updates available for software you own.

costs \$18 a year, but if you purchase an item from the Cirrus Online Store (http://www.pan-galactic.com/store_home?2.html), you'll get the extended service free.

You also can search for specific products at the Versions site. The database contains more than 50,000 products. Just enter a name and click Search. ■

Look For These Upcoming Titles From

PC Novice & Smart Computing



Internet Basics

This issue walks you step-by-step through your first online connection and gives you detailed tutorials on many Internet activities. Includes software and hardware tips.



Upgrading

Whether you're upgrading your CPU, hard drive, or modem, this step-by-step, easy-to-understand guide will show you how.



Powerful Presentations

Find out how to create impressive presentations using your PC. Filled with tutorials, tips, and technical advice.



Office 97

Learn how to make the most of the applications in Microsoft Office 97. Includes tips on every part of this powerful software suite

Available At These Stores

- B. Dalton
- Staples
- CompUSA
- Albertson's

- Waldenbooks
- Books A Million
- Barnes & Noble
- H.E. Butt Grocery

- Safeway
- Publix
- Crown Books
- Wal-Mart

Meet The Players

The array of companies and products out there can make buying computer hardware and software complex and time-consuming. Sometimes it takes a friendly pointer to show you where to start looking. The following list of companies represents your best bets in several key product areas. We list companies that have built good reputations through sales, performance, and service. You should always do some research based on your needs, but it's smart to start your search with one of the big names listed here. If you want solid performance, competitive prices, and customer service after the sale, you can't go wrong with these top sellers.

TidBits

Monitors



CTX International Inc.	(800) 888-2012, (909) 595-6146	http://www.ctxintl.com
Nokia Display Products Inc. (division of Nokia Inc.)	(800) 296-6542, (415) 331-4244	http://www.nokia.com
Sampo Technology Inc. (Industrial Products Division)	(770) 449-6220	http://www.sampotech.com
SONY Electronics Inc.	(800) 352-7669, (408) 432-1600	http://www.sony.com
TeleVideo Inc.	(800) 835-3228, (408) 954-8333	http://www.televideoinc.com

PCs



Compaq Computer Corp.	(800) 345-1518, (281) 370-0670	http://www.compaq.com
Gateway Inc.	(800) 846-2000, (605) 232-2000	http://www.gateway.com
Hewlett-Packard	(800) 752-0900, (408) 246-4300	http://www.hp.com
IBM	(800) 426-3333, (914) 765-1900	http://www.ibm.com
NEC Technologies Inc. (division of Packard Bell)	(800) 632-4636, (630) 775-7900	http://www.necnow.com

Scanners



Epson America Inc. (subsidiary of Seiko Epson Corp.)	(800) 463-7766, (310) 782-0770	http://www.epson.com
Hewlett-Packard	(800) 752-0900, (408) 246-4300	http://www.hp.com
Microtek Lab Inc.	(800) 654-4160, (310) 297-5000	http://www.microtekusa.com
Storm Technology Inc.	(888) 438-3279, (650) 691-6600	http://www.stormtech.com
Visioneer	(800) 787-7007, (510) 608-6300	http://www.visioneer.com

Printers



Canon U.S.A. Inc.	(800) 652-2666, 516-328-5000	http://www.usa.canon.com
Epson America Inc. (subsidiary of Seiko Epson Corp.)	(800) 463-7766, (310) 782-0770	http://www.epson.com
Hewlett-Packard Co.	(800) 752-0900, (408) 246-4300	http://www.hp.com
Lexmark International Inc. (subsidiary of Lexmark International Group Inc.)	(800) 539-6275, (606) 232-3000	http://www.lexmark.com
NEC Technologies Inc. (division of Packard Bell)	(800) 632-4636, (630) 775-7900	http://www.necnow.com

Graphics



Adobe Freehand

Adobe Systems Inc.

Adobe Illustrator

Adobe Systems Inc.

Adobe Photoshop

Adobe Systems Inc.

Corel DRAW

Corel Corp.

Painter

MetaCreations Corp.
(formerly Fractal Design)

(800) 833-6687, (408) 536-6000

<http://www.adobe.com>

(800) 833-6687, (408) 536-6000

<http://www.adobe.com>

(800) 833-6687, (408) 536-6000

<http://www.adobe.com>

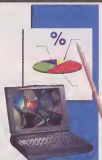
(800) 772-6735, (613) 728-8200

<http://www.corel.com>

(888) 707-6382, (408) 430-4100

<http://www.metacreations.com>

Presentations



Adobe Persuasion

Adobe Systems Inc.

Astound!

Astound Inc.

Corel WordPerfect suite

Corel Corp.

Lotus SmartSuite—

Freelance Graphics

Lotus Development Corp.

Microsoft Office suite—MS PowerPoint

Microsoft Corp.

(800) 833-6687, (408) 536-6000

<http://www.adobe.com>

(800) 982-9888, (408) 845-6200

<http://www.astound.com>

(800) 772-6735, (613) 728-8200

<http://www.corel.com>

(800) 343-5414, (770) 391-0011

<http://www.lotus.com>

(800) 426-9400, (425) 882-8080

<http://microsoft.com>

Databases



Alpha 5

Alpha Software

Corel Paradox

Corel Corp.

FileMaker Pro

FileMaker Inc.

Lotus SmartSuite—Approach

Lotus Development Corp.

Microsoft Office suite—

Microsoft Access

Microsoft Corp.

(800) 451-1018, (781) 229-2924

<http://www.alphasoftware.com>

(800) 772-6735, (613) 728-8200

<http://www.corel.com>

(800) 544-8554, (408) 727-8227

<http://www.claris.com>

(800) 343-5414, (770) 391-0011

<http://www.lotus.com>

(800) 426-9400, (425) 882-8080

<http://microsoft.com>

Personal Finance



Quicken Deluxe 98

Intuit Inc.

Money 98 Financial Suite

Microsoft Corp.

(800) 446-8848, (650) 944-6000

<http://www.intuit.com>

(800) 426-9400, (425) 882-8080

<http://microsoft.com>

Word Processing



Corel WordPerfect suite—

WordPerfect

Corel Corp.

Lotus SmartSuite—WordPro

Lotus Development Corp.

Microsoft Office suite—

Microsoft Word

Microsoft Corp.

(800) 772-6735, (613) 728-8200

<http://www.corel.com>

(800) 343-5414, (770) 391-0011

<http://www.lotus.com>

(800) 426-9400, (425) 882-8080

<http://microsoft.com>



Did You Know . . . ?

Creative Ideas For Practical PC Use

Wallpaper Notes

You probably already know how to create **wallpaper**, the graphical images that decorate the background of your Windows screen. But did you know you can leave yourself reminder notes directly on your wallpaper? That's right. Say you want to remind yourself that you have a meeting next Wednesday at 3:30. Just insert a text message into the image you're making for your wallpaper to create an instant reminder.

First, you need to create a new **bit-mapped image** (a graphics file with the .BMP extension) in Paintbrush or Paint. In Windows 3.1, open Paintbrush by opening Program Manager, Accessories, and then Paintbrush. In Windows 95 (Win95), open Paint by clicking the Start button, Programs, Accessories, Paint.

First, you'll probably want to change the background color since white is a bit obnoxious. In Win95, select the Fill With Color icon (it looks like a paint bucket spilling), right-click the color you want for the background in the color palette at the bottom of the screen, and click the background. In Windows 3.1, click the color you want, select the roller paintbrush icon, and click the background.

Now, click the text icon (A in Paint, abc in Paintbrush), click the insertion point for the text, and type in the pertinent information. Now save the file in the WINDOWS directory. Close the paint program.

With Windows 3.1, you'll want to open Program Manager, Main, Control Panel, and then double-click the Desktop icon. Under the setting for Wallpaper, click the down arrow in the File field and scroll to the

Quick Tip: The Sound Of Silence

Windows beeps and whistles at startup, at shutdown, during errors, and pretty much whenever anything happens that it wants you to know about. Why let all this racket bother you? It's simple to silence your PC when you've heard enough. In Windows 3.1, double-click the Sound icon in Program Manager, Main, Control Panel. In the Sound dialog box, uncheck the box in front of Enable System Sounds. In Windows 95, double-click the audio icon in the lower-right corner (the one that looks like a little yellow speaker or megaphone). In the Volume Control window that appears, check the box in front of Mute All under Volume Control. To turn your sounds back on, just recheck or uncheck these boxes respectively. □

image you just created to be your new background. Click OK and close the Desktop window to view your new reminder.

In Win95, double-click My Computer (on the Desktop), Control Panel, and Display (or right-click the Desktop and select Properties from the pop-up menu). Click the Background tab, and in the Wallpaper area click the Browse button. Locate the image file you created and click OK. Click the Apply button and close the Display Properties dialog box. You now have a virtual reminder splattered all over your Desktop!

To add another note to yourself, or to take out the meeting info once you have successfully made it there, just open the file in Paint or Paintbrush, make the appropriate modifications, and resave it. Then, just follow the above steps to complete the update. ■

"You've Got Mail," Says Sol

Tired of the same voice bellowing out greetings and announcements on America Online? Blue Wolf Network's shareware program *Sol* (for Windows 95/NT) gives you a choice of voices. It's available for download at <http://download.com> (just search for "sol"). This 1.6 megabyte (MB) demo gives you the voices of Sol (short for both Solomon and Sounds On Line) and his friends Lolita and Shred.

You can set any of these characters to say "Welcome" when you log on, let you know when you have new mail, say "File's done" when a file finishes downloading, and spurt out "Goodbye" when you close America Online (AOL) for the day.

You can run Sol from the Start/Programs menu. When Sol opens, you'll see two columns containing the three personalities and a list of the

AOL sounds. You can select a character and a sound, and then click Play Sound to see what you'll hear in that situation. To choose that character as your default AOL emcee, press the Set button. Next time you open AOL, you'll hear your new voice.

If you register the software for \$9.95, you'll get an additional 11 characters to add to AOL's voice selection with a download from <http://www.setsystems.com/cgi-bin/buy-sol>.

If you have a tip for Did You Know?, send it to: Did You Know?, Smart Computing, 131 W. Grand, Lincoln, NE 68521 or send an E-mail message to joel-trauch@smartcomputing.com. ■

by Joel Trauch

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```
c:
cd \
attrib -h -s 386spart.par
del 386spart.par (Press ENTER after each line.)
```

This file is normally hidden and protected against deletion, so the key here is to use the ATTRIB command to strip the protective "hidden" and "system" attributes of the file, which allows you to delete it.

DOS

DOS COMPUTING

Q: When I use the DIR command the names of files scroll so fast that the top ones scroll off the screen before I can read them. What can I do?

A: If you're using DOS version 5 or later just put /P at the end of the DIR command. The /P means "pause" and will stop the scrolling and pause after one screen of information is visible, then continue when you press a key.

If you're using an earlier version of DOS where /P doesn't work you can use several methods. Put |more at the end of your DIR command. That works much like /P—and will display the output of any DOS command one screen at a time, pausing between each. You also can try pausing any fast-scrolling computer screen by pressing CTRL-S ("stall") and restarting it with CTRL-Q ("quit-stalling.") Some keyboards have a PAUSE key that'll pause fast-scrolling screens.



WINDOWS 95

Q: I followed the instructions in one of your articles regarding installing optional Win95 accessories. Using the Add/Remove Programs and Windows Setup feature of Control Panel, I installed the Direct Cable Connection accessory off my Win95 installation CD-ROM. The new Direct Cable Connection feature works fine, but now all the other Accessories (such as WordPad) have disappeared from my Programs, Accessories menu. What happened?

A: When you install Windows utilities and features using the Windows Setup tab of Control Panel's Add/Remove Programs dialog box, it's easy to accidentally deselect an item (or group of items) just by clicking the box next to it and removing the X next to the item. This tells Windows to uninstall that applet or utility. Since the applets and utilities reside under categories such as Fax or System Tools a single wrong click can inadvertently uninstall a whole submenu of features.

Restart your Add/Remove Programs routine, click the Windows Setup tab, and reselect the missing accessories.

Q: I'm upgrading my Windows 3.1 system to Win95. I want to do what you once called a "clean install" of the upgrade onto an empty hard drive, then I want to put back some of my old programs. Unfortunately, in one case, I lost the original program diskettes, and in another case Diskette #1 of my original diskettes is defective. Can I just copy the directories of the present programs onto diskettes, install Win95, then copy the files back and have Win95 find and create icons for them?

A: No. Windows 3.1 has a feature like the one you want (and it works much of the time), but because of the greater complexity of installations on Win95, that operating system has no such ability to search for and "adopt" uninstalled orphan programs on your hard drive.

You normally have two ways to preserve your old programs. You could do a "dirty" upgrade (install Win95 on top of the running copy of Windows 3.1 complete with the old programs still there) or reinstall the programs from



WINDOWS 3.1

Q: I have a Gateway 2000 75 megahertz (MHz) P5 system purchased in 1995 with Windows 3.1 and updated to Windows 95 (Win95). My son formatted my computer on a recent visit and found a strange file called 386spart.par that occupies 19,710 kilobytes (KB). It confused him because he was unable to open, delete, or remove the file. We called Gateway tech support. A representative claimed it might be a Win95 file, but he wasn't sure. The file can't be deleted and won't open into a word processor.

A: We don't find the file strange, but we do find it strange that the technician at Gateway didn't recognize it immediately. It's the standard, permanent swap file (also known as a virtual memory file because it uses hard drive space like memory) that Windows 3.1 creates and uses. We only can guess the technician was new enough to know nothing about the not-so-old-days when Gateway distributed Windows 3.1. Win95 makes its own, different swap file and doesn't use the old one. In fact we're surprised that the installation of Win95 didn't remove it for you. To delete it, go to a DOS prompt and execute the following four commands:

WINDOWS 95 (CONT.)

original diskettes or CD-ROMs after Win95 is running. Most program makers will replace defective installation diskettes free or for a small fee if you can prove you are a legitimate owner.

Another option is to use the ability of most commercial uninstaller utilities such as *Remove-It* and *CleanSweep* to "transport" a program. That means they can uninstall a program from one hard drive and reinstall it on another drive. But be careful: We aren't sure how good they are in transporting between Windows 3.1 and Win95.

Q: *I run an old DOS program called PC-File under Win95. If I leave it doing a printing job and then go work in WordPerfect, PC-File slows down to a crawl. If I bring it back to the front it speeds up, even with WordPerfect still open. My computer is a 100 megahertz (MHz) Pentium with 16 megabytes (MB) of random-access memory (RAM). Is this just a matter of my computer being too old and slow to run two busy programs at the same time, or is there something I can do about it?*

A: We doubt it's a matter of laggard hardware. Even a Pentium 100 should have plenty of power to do what you want with 16MB of RAM. More likely it's a problem with the way the DOS program's properties are set up. We say that particularly because your program is running OK when it's in the foreground.

If you have a shortcut made especially for the PC-File program right-click it to get into its properties. If the program has no shortcut and you've been starting it up from a DOS prompt, get into its properties instead by right-clicking the MS-DOS Prompt icon on your Taskbar when the program is running and select Properties. In either case click the tab that says Misc. There you'll see a bar/adjustment that says Idle Sensitivity; drag its slider toward Low. In the box that says Background, make sure there's no mark next to Always Suspend. By the way, if you have a DOS program you never leave working in the background, checking Always Suspend may make your other open programs run better when they're in the foreground.

Q: *I have an old 486 and plan on buying a Pentium II. Can I connect the two (and maybe more computers later) even if the server (the Pentium II machine) in this little network has Windows NT (WinNT) and the 486 has Win95?*

A: Assuming you'll have network cards and cables for all computers, the answer is "yes." You can mix and match in one network computers running WinNT-Workstation, WinNT-Server, Win95, and even the old Windows For Workgroups 3.11. You don't even need a true server such as WinNT-Server. All the operating systems run

very nicely in small networks (say, 15 PCs) as peer-to-peer networks. In a peer-to-peer network the data, programs, printers, and fax cards users share can be located on any computer within the network, not just on the official server.

On a traditional server-type network all shared components reside on a single server computer. Having one single server simplifies backup and security. It also increases vulnerability because if the server ever goes down everything grinds to a stop.

On the other hand, a peer-to-peer network lets you put, say, all accounting stuff on one computer, communications on another, and graphics on a third. That way if one server goes down, only one critical function is knocked out.

RX

UTILITIES

Q: *I've seen services offering to back up my files over the Internet. What do you think about these?*

A: On the plus side, an online backup has the valuable advantage of being off your site. If your house (and, more importantly, computer) burns up, at least your backups won't. Plus you don't have to buy a backup device and media. You also could use this backup method on a portable PC while traveling as long as you could reach an Internet connection. Online backup may be viable as a means of backing up just critical business data.

In terms of the critical function of backing up an entire system, speed can be a problem. Unless you have a high-speed Internet connection (such as a cable modem) much faster than most modems, backing up online can be hopelessly slow, especially for that first full system backup. We also have reservations about what happens when your system crashes and you must restore everything from scratch. You wouldn't have a way to connect to the Internet to restore data when you need to most. Online connections are often the last feature to run again when you're rebuilding a dead system.

The more paranoid among us also worry that such backups aren't under our direct control, but are "somewhere out in cyberspace."



COMPUTER HARDWARE

Q: *I have an older Ambra portable computer running Windows 3.1. I want to use the built-in trackball, but I also want to plug a Microsoft mouse into the mouse port and use the trackball and the mouse. So far I've been unable to get both to work; if I can't get both to work I'd settle for disabling the trackball. Is either possible?*

A: Probably. You can try the following changes to see if they help:

COMPUTER HARDWARE (CONT.)

Try getting into your Complementary Metal-Oxide Semiconductor (CMOS) setup (see "Venture Into BIOS" in our February 1998 issue) and see if it has a provision for disabling the trackball. (It may show up there as "internal mouse" or "internal mouse port" rather than "trackball.")

If your system has a Mouse.ini file (either in a MOUSE or WINDOWS directory) look for a line regarding the mouse type that reads "mouse=ps2". Make sure you have only one such Mouse.ini file. If you have two, copy them onto diskettes, then erase one from the hard drive. See whether matters improve; if not, put it back and experiment with erasing the other.

Q: I have an IBM ThinkPad portable PC. Will it harm it or its charger to use the computer while it's charging?

A: Not directly, but note two things that may affect your battery. First, if you operate your PC while the battery is charging it'll take longer to charge than when it's on the charger but not running.

Second, most older portables have nickel-cadmium batteries. These have what is called a memory effect. That means if you develop a pattern of running the computer, say, 20 minutes on a battery then fully recharging the battery, the battery "remembers" that. Pretty soon it acts as if it only has 20 minutes of capacity. Some memory-disabled batteries can be revived through a couple of full discharge/charge cycles, but often they're ruined permanently. So with nickel-cadmiums always drain/use the battery so it's fully discharged before recharging it.

Promptly plugging the portable into its charger as soon as a wall plug is available may be inadvertently breaking the "always fully discharge before charging" rule. Even if you always leave your battery fully charged and plugged into your charger, make a point of fully discharging and recharging a nickel-cadmium battery at least once a month. Another solution would be to simply remove and store your batteries after putting them through at least one full discharge/charge cycle. Put them back in when you hit the road.

Newer, costlier nickel-metal hydride batteries have little or no memory and can pretty much be charged any time without affecting their capacity or life span. Yet even the users of these batteries do better by fully draining them occasionally. The even newer Lithium Ion (Li-ion) batteries have no memory and don't care if you drain them or not.

Q: I want to upgrade several Gateway 486SX-33 systems with Micronics motherboards and 8MB of RAM. They have open 169-pin CPU sockets. The Intel DX2/66 CPUs are no longer available, so our only upgrade options are OverDrive upgrade CPUs

from Intel or ones made by AMD or Cyrix. What is your experience with these, and what do you recommend?

A: Although Intel no longer sells DX2/66 CPUs, some are available used for under \$25. These are a reasonable upgrade option for folks with 486DX-33 computers (they'll pop right in and run). These may not be an option for you, though, because some 486SX computers have their SX CPU chips soldered in place. Intel no longer makes any OverDrive upgrade CPUs for 486s, though you still might be able to find some. A specially designed upgrade CPU is usually different from just a new, faster regular CPU. They're for cases like yours where the older motherboard's CPU socket, voltage, or speed settings simply can't accommodate a faster/newer regular CPU. So they'll cost more than plain CPUs.

We have had success with upgrade processors for 486s from each vendor you mentioned, as well as from Kingston and Evergreen. Any upgrade CPU on the market that would work in your computers would give dramatic improvements. Ask each vendor whether they claim theirs will work in your particular computers, and be sure to get a money-back warranty. The chips usually work as claimed, but you'll sometimes be unable to get one running in a particular computer. Balance price against performance when deciding which to buy. Also remember that unless your computer has a proprietary (odd-shaped) motherboard you can buy some low-end Pentium motherboards with CPUs included for under \$200. These usually buy you far more performance and compatibility than just an upgrade CPU.

Keep in mind that your amount of RAM sometimes affects performance even more than processor type and speed. For example, those old computers would probably run Windows better if upgraded to 16MB or 32MB of RAM than they would if you installed a fast upgrade CPU but left them with only 8MB of RAM.



THIS OLD PC

Q: I have some 5.25-inch diskettes from an old KayPro computer. My Compaq computer has a 5.25-inch diskette drive, so I thought I could read the old diskettes in it while using MS-DOS 6.0. The DIR command displays a directory, but when I use the TYPE command I get about 50% English language and 50% unrecognizable characters. How can I usefully read these files?

A: DOS' TYPE command followed by a file name can sometimes quickly display that file's contents onscreen. But there are some problems. For starters you didn't send us any file names so we don't even know if these are program files, text files, word processor files, or what. So that makes figuring out how to display or use them a bit tough. But we'll cover several possible solutions.

THIS OLD PC (CONT.)

First find out which type of KayPro your diskettes came from. Then you must find out what sort of files are on the diskettes. KayPro computers were of two different types. Most older KayPro computers ran the CPM operating system and used diskettes formatted for that system. The popular KayPro-II CPM computer (built around 1982), was hot stuff in its day. This portable machine (if 40 pounds can be considered portable) with a "big 9-inch green monitor" ran at a blazing 5MHz and had 64KB (1/16th of a megabyte) of RAM and two 784KB 5.25-inch diskette drives (no hard drive, of course.)

But a few of the last KayPros made were quasi-modern MS-DOS computers. If the diskettes you're dealing with come from a KayPro MS-DOS computer, they should be readable by DOS or Windows. Just because the diskettes are readable doesn't mean the files are, however. For example, if the files are from some ancient database program we might not know what, if any, modern program can read them properly. Program files from old KayPro CPM computers won't run under DOS or Windows. CPM program files sometimes end with .CMD.

If the diskettes are from a CPM KayPro, try to get a utility called 22disk.zip. It's an MS-DOS program that runs under DOS but can read old KayPro CPM diskettes. You can find it on the Internet at <http://www.irtech.com/treehouse/files/T5.htm> or on CompuServe at the old computer hobbyist forum (Go: Club) in the forum library under CPM utilities.

If we had to make a wild guess we'd say the files you have might be WordStar Version-3 word processor files. We say that because many KayPros were sold with that word processor. Although few users have heard of it today, in the early '80s WordStar was at the top of the hill. There's a good chance you can find some modern word processor that can view and edit old WordStar files. Pull down the Help menu in a modern word processor and search for help regarding the word "import."

Q: I have an old 386 computer with an even older 30MB hard drive. I need to upgrade to a bigger hard drive and add more RAM to install Windows. Can you tell me how much I can expect to spend—or at least tell me if I'm wasting my time upgrading a computer this old?

A: You'd spend \$100 to \$200 for a new hard drive of over 1,000MB (1 gigabyte, about the smallest available new these days.) The old Basic Input/Output System (BIOS) in the computer may have a difficult time recognizing more than 512MB of the new drive, and it'll never run the drive at the top speeds it's capable of.

RAM is cheap. If you buy the PC, spend \$15 to \$30 to bring the RAM up to 16MB, and you'd likely have a 486 computer that'll run circles around the 386. Lean toward 486s built after 1994 and lean away from 486SX computers (though even these will beat your old machine.)

You can probably buy a used 486 (maybe with Win95 already installed) that already has a tolerably sized hard drive (say 500MB or larger) and adequate RAM (8MB or more) for under \$200 to \$500. We're inclined to agree that buying such a PC would be a better use of your money.



WORD PROCESSING

Q: I write cookbooks for a living and have never been able to find the symbol ° (for degrees). I also use the ¼, ½, and ¾ pre-formed fractions. Is there any way to get those?

A: One useful way to get symbols not on your keyboard is to use the accessory called Character Map. It's standard in Windows 3.1 (found in Program Manager's Accessories group) and optionally installable in Win95. If you can't find it in Win95 under the Start button, Programs, and Accessories, then you can install it. You'll need your Win95 installation CD-ROM for this procedure. Click Start, Settings, Control Panel, and double-click the Add/Remove Programs icon. Click the Windows Setup tab. In the lists of Accessories put a checkmark next to the Character Map.

To use Character Map click Start, Programs, Accessories, and then Character Map. You'll see a grid with all the characters—visible on your keyboard or not—available in each font on your computer. You select the font you want to pick characters from in the upper-left corner. Use the mouse to click any character, then click Copy. Once back in your word processor, just paste the character there.

Character Map can teach you to generate the character without using Character Map, though it's a bit cumbersome. While in Character Map highlight the character. The lower-left corner of Character Map will show something such as "Keystroke: Alt+0186." This means that to produce that particular character when that font is active within most any Windows program you just hold down your ALT key and press 0186 on your numeric keypad. When you release the keys the character appears. If 0186 is the number that produces the ° symbol in, say, the Arial font, it usually, but not necessarily, does the same thing in some different conventional font.

In your particular case the magic numbers are 0186 for the ° (for degrees), 0188 for ¼, 0189 for ½, and 0190 for the ¾.

WordPerfect and Microsoft Word also make special provisions for generating special characters, but the methods we mentioned work in virtually any Windows program. ■

Get straight answers to your technical questions. Ask Smart Computing! Send your questions, along with a phone and/or fax number so we can call you if necessary, to: Smart Computing Q&A, P.O. Box 85380, Lincoln, NE 68501. Please include all version numbers for the software about which you're inquiring, operating system information, and any relevant information about your system. (Volume prohibits individual replies.)

ACTION



EDITOR

When Ralph Nader can't be reached, bring your computer service problems to our Action Editor column. This page will help you find products, resolve service problems, and keep manufacturers alert to the critical issue of customer relations.

Are you having trouble finding a product or obtaining adequate service from a manufacturer? If so, we want to help solve your problem. Send us a description of the product you're seeking or the problem you had with customer service. In billing disputes, include relevant information (such as account numbers or screen names for online services) and photocopies of checks. Include your phone number in case we need to contact you. Letters may be edited for length and clarity; volume prohibits individual reply. Write to:

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or
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Dear Action Editor,

Last November I purchased a NewCom 56K IFX internal modem with the promise of a \$30 rebate.

I filled out the required form, included the necessary receipts, and mailed them to NewCom. After waiting 12 weeks, I wrote to NewCom to find out whether the company needed additional information. No answer. I wrote another letter three weeks later, but still received no answer.

Bobbie E. Combs
Springfield, MO

When we contacted NewCom, a representative checked the records and discovered that Combs did require a rebate. NewCom mailed a check for \$30 a week after we contacted them, saying Combs' paperwork was overlooked amid the large amount of mail received at NewCom.

We received no reason why Combs' messages went unanswered. Any readers wishing to check on their NewCom rebates should call (818) 597-3200. Press 4 to contact the rebate department.



Dear Action Editor,

In your January 1998 issue you recommended Storm Technology's EasyPhoto ImageWave Scanner. I purchased this scanner in November 1997. I sent my proof of purchase and all the requested documents to the company for a \$50 rebate. When I didn't hear from Storm Technology by February, I faxed a letter explaining my complaint. I still haven't heard anything. Can you help?

Curtis Oldsters
Wellborn, PA

A Storm Technology representative apologized for the company by saying it was selling a large number of scanners and had difficulty keeping up with the incoming rebates. Storm sent Oldsters the \$50 rebate several days after we contacted the company.

The representative also told us it's often better to phone customer service and ask for an agent name to fax a complaint or request to rather than sending it to the general customer service area.

Anyone having a problem with a Storm rebate should call technical support at (650) 969-9555 or (888) 438-3279.

Dear Action Editor,

I was impressed with your description of the EasyPhoto ImageWave scanner from Storm Technology in your January 1998 issue. Before I purchased the scanner, I very carefully read the system requirements printed on the scanner's box and decided that my system was well within the requirements listed.

But when I tried to install the software I kept receiving a message that my computer could not access the scanner and that I needed an extended capabilities port/enhanced parallel port (ECP/EPP) printer port. That requirement was not listed in your article or on the scanner's box.

When I contacted Storm Technology, a representative suggested that I install an ECP/EPP printer port and update my computer's BIOS (Basic Input/Output System). I followed the rep's suggestion, but the images the scanner produced were unacceptable. It produced half-inch colored bars down the length of each page.

I sent a copy of the scanner's "work" to Storm Technology. A company representative contacted me and advised me that the scanner was defective, saying I should exchange it at the store where I bought it.

The new scanner is no better, though. I sent Storm Technology pictures from it but I've been unable to receive satisfactory answers to my messages, with the same pre-formatted reply sent to me three times.

Robert J. Schell
Arlington, VA

Storm Technology sent Schell a third scanner, a newer model, after we contacted the company. Schell reports the newer model is working admirably, although his voltage readings have shown that the scanner is putting out only 7.5 volts instead of 12 volts. In other words, it probably shouldn't be working properly.

Schell says Storm Technology, despite not responding immediately, worked with him to resolve his problem. "They bent over backwards for me," he says. Should anyone else need help, call Storm Technology at (650) 969-9555 or (888) 438-3279.

(NOTE: We apologize for not going into detail about ECP/EPP in the earlier article. Most PCs purchased in the past few years should be running in enhanced mode and offer ECP/EPP capability. If they're not, users only need to go into their BIOS configuration utilities during startup and change their parallel port settings to the enhanced or extended mode. Some users with earlier PCs like Schell's that don't support this mode might have to install a new input/output card [usually less than \$30] that offers a port.) ■



GLOSSARY

Of Terms

bandwidth—The capacity a network or data connection has for carrying data.

bit map—A type of graphics file in which one or more bits are used to describe the color of each tiny square that makes up the image.

cell—The intersection of a row and a column in a spreadsheet, such as cell A1, the cell located at the intersection of column A and row 1. Each cell is a box that can hold text, a numerical value, or a formula.

directory—An organized catalog of files and subdirectories contained on a hard drive or a removable disk. The main directory is called the root directory. All subdirectories stem from it. Directories are found in the hierarchical file schemes common to most operating systems.

Ethernet—The most widely used local-area network (LAN) protocol.

file allocation table (FAT)—The method Microsoft DOS (MS-DOS) uses to keep track of the contents of a disk. The table is a chart of numbers that correspond to cluster addresses on the disk. When a file is requested, DOS searches addresses in the FAT to find where a file's clusters are stored on disk. It then goes to the disk to collect each cluster of information.

font—The design for a set of characters, which includes typeface, point size, and weight. Within the Helvetica typeface family, 12-point bold is one font while Helvetica 14-point is another.

graphic—The digital version of an image, photograph, or picture displayed on a monitor screen. The computer must change photographs or other images into the digital form of files for it to understand and work with them.

image editor—A graphics program used to edit or manipulate an image, either

by adding a user's special touches through computerized drawing or by using computer-generated manipulations such as morphing.

Java—A programming language designed to write programs that can be safely downloaded from the Internet to computers and immediately run without fear of viruses. Java is known for its ability to run on diverse types of computers and operating systems.

library—A collection of files, programs, routines, or functions.

morphing—A method of animation that seamlessly transforms one image into another.

network server—The computer that controls access and offers resources to other computers in a group of interconnected computers. A server usually contains a network drive and a network directory.

offline—Broken contact between a computer and its connected devices. A device is offline, for example, when it is disconnected or when it is turned off.

palette—The set of available colors in a given computer graphics program or computer system. Palette also can refer to the collection of tools in paint programs used for creating and altering images.

physical address—An actual hardware-based location within a computer. For example, a computer's hard drive has a physical location denoted in memory by the physical address that the processor knows to access when it seeks material stored there.

pixels—The smallest part of an image that a computer printer or display can control. An image on a computer monitor consists of hundreds of thousands of pixels, arranged in such a manner that they appear to each be connected.

real time—Refers to a computer-related operation that occurs within a time frame imposed by external conditions. Real-time operations either happen in human perception of the normal passage of time, or proceed at the same speed as a physical or external process.

registration—To register software with the manufacturer, which makes the user eligible to receive benefits such as free technical support and product updates. Registering software usually involves sending in information on a registration card or via an E-mail message.

reset button—A button, usually found on the front of the computer case, that lets a user restart the computer without shutting off the power to the computer.

Taskbar—A bar at the bottom of the screen that displays open applications and aids in task switching in Windows 95.

toolbar—A row of boxes, often at the top of an application window, which control various functions of the software. The boxes often contain images that correspond with the functions they control.

Web server—A computer where a certain set of World Wide Web pages reside. A server may be dedicated, meaning its sole purpose is to be the server, or non-dedicated, meaning it can be used for basic computing in addition to acting as the server.

Web site—A collection of World Wide Web documents managed by a single entity that provides information such as text, graphics, and audio files to users, as well as connections called hyperlinks to other Web pages.

wizard—A feature that provides step-by-step instructions to lead users through certain tasks in applications. A wizard uses dialog boxes that walk users through each step of a process.

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Your Favorite Software May Be Free On The Web

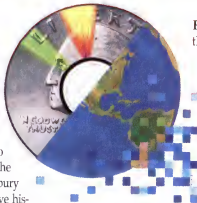
Software watching as a hobby sounds monotonous. But it actually may be the perfect diversion for the impatient. The ever-changing products and feature lists that frustrate users are the perfect diversion for folks who can't stand stagnation. Think of the possibilities of a software time capsule. It's a great solution for those who want to leave a legacy, yet still be around for the payoff of opening the package. You could bury a few software applications today and have historical relics worth digging up before the next winter Olympics.

We started all this software rumination during a recent trip to the dark corners of our software library. It's our version of a programming time capsule. As our staff members browsed through the review units that time forgot, they produced exclamations along the lines of "Hey, I'd forgotten all about that one." There on the bottom shelf was a copy of OS/2 Warp, the last great offensive against Microsoft Windows' operating system hegemony. A few shadows hid an Internet connectivity suite (*without* the Netscape or Microsoft name) providing five different applications to help your online journey. These and other hot products only recently went into cold storage thanks to the racing pace of industry change.

We started piling up the software contenders turned pretenders and considering what put each product in that unfortunate category. The Internet easily emerged as the top software slayer. We quickly tallied a couple of dozen programs whose market value evaporated because their content or functionality is now available online. Some of these packages are still on store shelves, complete with price tags of \$39.95 or higher. We began to wonder how many software buyers still ante up for some of these products, oblivious to the fact that the content is now available on the 'Net at no charge.

Check out a few of the resources that have moved online from their exclusive homes on diskettes and CD-ROMs just a couple of years ago:

Clip art. You can't turn around in the lesser-used parts of our software library without falling over some variation of the "10,000-Image Clip Art Explosion." These mass-produced graphics were a boon to page designers in the past. But the diversity and size of the Web's graphics libraries outshine most CD-ROM collections.



Reference material. There's no denying the rush of information mastery you get the first time you look up Germany's gross national product in three seconds with a CD-ROM reference product. As vast as those products are, however, they still can't match the 'Net. Online reference has revolutionized fact-checking and background research.

Educational games. Parents once jumped at the chance to pay a mere 30 bucks for software that helped their kids practice math with a baseball

game or reading with an interactive story. Those resources are now free features of many AWorld Wide Web sites.

Basic Utilities. We actually found a boxed version of a file compression/decompression utility on our shelves. It's hard to remember when anyone obtained this utility anywhere other than online. You have to dig for examples of how non-connected PCs could even use this tool; it's virtually useless if you're not sending and downloading files online. Other simple tools are similarly prevalent on the Web. HouseCall, at <http://housecall.antivirus.com>, is a perfect example. This Web site scans files and complete systems for viruses at no charge.

We admit that any reliance on the 'Net introduces a certain amount of frustration. You'll have to dial up your Internet connection and navigate the Web to use Internet reference tools. CD-ROM versions put the data right on your hard drive. Downloading clip art from a Web site is undoubtedly slower than pulling it from a CD-ROM. Still, the currency and breadth of online resources are unmatched. You must decide which evil is lesser: the inconveniences of going online for free resources or paying for boxed software.

Of course, we're not advocating sealing off our CD-ROM drives, forswearing software, and becoming online-only creatures. That day may come, but no one can see it from here. For now, be sure to put the Web's search engines through their paces and look for what you need online before you give any more cash to the local Software R Us store. You may be amazed at what the creators of the Web have thought of and how generous they are in giving it away. Plus if you rely more on the Web, you can cut down the amount of forgotten software you throw out three years from now. ■

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